=> d his

(FILE 'HOME' ENTERED AT 10:33:46 ON 27 MAY 1997)

FILE 'HCAPLUS' ENTERED AT 10:34:58 ON 27 MAY 1997
L1 50 S DELLACORTE ?/AU
L2 164944 S COMPOSITE#
L3 20 S L1 AND L2
L4 1965 S SELFLUBRIC? OR SELF(2A)LUBRIC?
L5 24642 S METAL####(2A)BOND?
L6 12 S L1 AND L4
L7 7 S L1 AND L5
L8 5 S L6 AND L7

=> d l8 1-5 all

L8 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 1997 ACS
AN 1995:851178 HCAPLUS
DN 123:261380
TI The effect of prolonged exposure to 750.degree.C air on the tribological performance of PM212: **self-lubricating** composite material
AU Bemis, Kirk; Bogdanski, Michael S.; **Dellacorte, Christopher**; Sliney, Harold E.
CS Case Western Univ., Cleveland, OH, 44106, USA
SO Tribol. Trans. (1995), 38(4), 745-56
CODEN: TRTRE4; ISSN: 1040-2004
DT Journal
LA English
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 57
AB The effect of prolonged exposure to 750.degree. air on the tribol. performance and dimensional stability of PM 212, a high temp., **self-lubricating** composite, is studied. PM 212 contains **metal-bonded** Cr3C2 70, BaF2/CaF2 eutectic 15, and silver 15 wt.%. Rub blocks were fabricated from PM 212 by cold isostatic pressure followed by sintering. Prior to tribol. testing, the rub blocks were exposed to 750.degree. air for periods ranging from 100 to 1000 h. Then, the rub blocks were slid against nickel-based superalloy disks in a double-rub-block friction machine in air under a 66 N load at temps. from 25.degree. to 750.degree. with a sliding velocity of 0.36 m/s. Unexposed rub blocks were tested for baseline comparison. Friction coeffs. ranged from 0.24 to 0.37 for the unexposed rub blocks and from 0.32 to 0.56 for the exposed ones. Wear for both the composite blocks and superalloy disks was typically in the moderate to low range of 10-5 to 10-6 mm3/N-m. Friction and wear data were similar for the rub blocks exposed for 100, 500, and 1000 h. Prolonged exposure to 750.degree. air increased friction and wear of the PM 212 rub blocks at room temp., but their tribol. performance remained unaffected at higher temps., probably due to the formation of lubricious metal oxides. Dimensional stability of the composite was studied by exposing specimens of varying thickness for 500 h in air at 750.degree.. Block thicknesses were found to increase with increased exposure time until steady state was reached after 100 h of exposure, probably due to oxidn.
ST chromium carbide calcium barium fluoride silver; **self lubricating** composite ceramic air temp
IT Antifriction materials
Ceramic materials and wares
(composite of chromium carbide and calcium and barium fluoride and silver; effect of prolonged exposure to high-temp. air on

tribol. performance of)
IT 12012-35-0, Chromium carbide (cr3c2)
(composite of calcium and barium fluoride and silver and; effect of prolonged exposure to high-temp. air on tribol. performance of)
IT 7789-75-5, Calcium fluoride, uses
(composite of chromium carbide and barium fluoride and silver and; effect of prolonged exposure to high-temp. air on tribol. performance of)
IT 7440-22-4, Silver, uses
(composite of chromium carbide and calcium and barium fluoride and; effect of prolonged exposure to high-temp. air on tribol. performance of)
IT 7787-32-8, Barium fluoride
(composite of chromium carbide and calcium fluoride and silver and; effect of prolonged exposure to high-temp. air on tribol. performance of)

L8 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 1997 ACS
AN 1995:838426 HCAPLUS
DN 123:261357
TI The effect of processing and compositional changes on the tribology of PM212 in air
AU Bogdanski, Michael S.; Sliney, Harold E.; **Dellacorte, Christopher**
CS Case Western Reserve University, Cleveland, OH, 44135, USA
SO Lubr. Eng. (1995), Volume Date 1995, 51(8), 675-83
CODEN: LUENAG; ISSN: 0024-7154
DT Journal
LA English
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 56
AB The effects of processing and compositional variations on the tribol. performance of PM212 were investigated. PM212 is a **self-lubricating** powder metallurgy composite, comprised of a wear-resistant, **metal-bonded** chromium carbide matrix, contg. the solid lubricants barium fluoride/calcium fluoride eutectic and silver. Several composites were formulated which had lubricant, matrix, and processing variations. Processing variations included sintering and hot isostatic pressing. Pins fabricated from the composites were slid against superalloy disks in a pin-on-disk tribometer to study the tribol. properties. Several composites exhibited low friction and wear in sliding against a nickel-based superalloy. The results showed that, under these test conditions, the tribol. properties of PM212 are not highly sensitive to compositional and processing variations within the matrix studied.
ST **self lubricating** powder metallurgy composite; chromium carbide barium calcium fluoride lubricant
IT Composites
(nickel-cobalt-bonded chromium carbide matrix contg. barium fluoride/calcium fluoride eutectic; effect of processing and compositional changes on tribol. of **self-lubricating** powder metallurgy composite contg.)
IT Antifriction materials
(nickel-cobalt-bonded chromium carbide matrix contg. barium fluoride/calcium fluoride eutectic; tribol. of)
IT 7440-22-4, Silver, uses 7787-32-8, Barium fluoride 7789-75-5, Calcium fluoride, uses 11101-13-6 11130-49-7, Chromium carbide
(effect of processing and compositional changes on tribol. of **self-lubricating** powder metallurgy composite contg.)

L8 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 1997 ACS
AN 1993:676372 HCAPLUS
DN 119:276372
TI Tribological and mechanical comparison of sintered and hot isostatically pressed PM212 high-temperature **self-lubricating** composites
AU **DellaCorte, Christopher**; Sliney, Harold E.; Bogdanski, Michael S.
CS Lewis Res. Cent., NASA, Cleveland, OH, USA
SO NASA Tech. Memo. (1992), NASA-TM-105379, E-6592, NAS1.15:105379 27 pp. Avail.: NTIS
From: Sci. Tech. Aerosp. Rep. 1992, 30(6), Abstr. No. N92-15128
CODEN: NATMA4; ISSN: 0499-9320
DT Report
LA English
CC 56-4 (Nonferrous Metals and Alloys)
Section cross-reference(s): 57
AB Selected tribol., mech., and thermophys. properties of two versions of PM212 (sintered and hot isostatically pressed) are compared. PM212, a high temp. **self-lubricating** composite, contains 70 wt.% **metal bonded** Cr carbide, 15 wt.% CaF2/BaF2 eutectic, and 15 wt.% Ag. PM212 in the sintered form is .apprx.80% dense and have previously been shown to have useful tribol. properties from room temp. to 850.degree.. Tribol. results of a fully densified pressed version are given. In addn., selected mech. and thermophys. properties of both types of PM212 are discussed and related to the tribol. similarities and differences between the two composites. Both composites display similar friction and wear properties. However, the fully dense pressed PM212 composite exhibits slight lower friction and wear. This may be attributed to its generally higher strength properties. The sintered version displays stable wear properties over a wide load range. Based upon their properties, both composites have potential as bearings and seals for advanced high-temp. applications.
ST friction wear ceramic metal composite; **self lubricating** bearing metal composite; chromium carbide composite **self lubrication**; silver composite **self lubrication**; calcium fluoride composite **self lubrication**; barium fluoride composite **self lubrication**
IT Friction
(wear, of **self-lubricating** chromium carbide-calcium fluoride-barium fluoride-silver composite)
IT 137164-06-8, PM212
(friction and wear properties of **self-lubricating**)
IT 7440-22-4, Silver, properties 7787-32-8, Barium difluoride 7789-75-5, Calcium difluoride, properties 11130-49-7, Chromium carbide
(**self-lubricating** composite contg., friction and wear properties of)

L8 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 1997 ACS
AN 1992:25878 HCAPLUS
DN 116:25878
TI Tribological properties of PM212: a high-temperature, **self-lubricating**, powder metallurgy composite
AU **DellaCorte, Christopher**; Sliney, Harold E.
CS Lewis Res. Cent., Natl. Aeronaut. Space Adm., Cleveland, OH, USA
SO NASA Tech. Memo. (1989), NASA-TM-102355, E-5066, NAS1.15:102355, 22 pp. Avail.: NTIS

From: Sci. Tech. Aerosp. Rep. 1990, 28(4), Abstr. No. N90-12659
CODEN: NATMA4; ISSN: 0499-9320
DT Report
LA English
CC 56-10 (Nonferrous Metals and Alloys)
AB PM212 has the same compn. as the plasma-sprayed coating, PS212, which contains **metal-bonded** Cr carbide 70, Ag 15, and BaF2/CaF2 eutectic 15%. The carbide acts as a wear-resistant matrix and the Ag and fluorides act as low and high temp. lubricants, resp. The material is prepd. by sequential cold press, cold isostatic pressing, and sintering. Hemispherically tipped wear pins of PM212 were slid against superalloy disks at 25-850.degree. in air in a pin-on-disk tribometer. Friction coeffs. range 0.29-0.38 and the wear of the composite pins and superalloy disks was moderate to low at 10-5-10-6 mm3/N-m. The material has a compressive strength of .gtoreq. 130 MPa at 25-900.degree..
ST silver cermet aluminum carbide wear; barium fluoride chromium carbide wear; calcium fluoride chromium carbide wear; fluoride chromium carbide cermet wear
IT 137164-06-8, PM212
(tribol. properties of)

L8 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 1997 ACS
AN 1991:637246 HCAPLUS
DN 115:237246
TI Tribological properties of PM212: a high-temperature, **self-lubricating**, powder metallurgy composite
AU **Dellacorte, Christopher**; Sliney, Harold E.
CS Lewis Res. Cent., Natl. Aeronaut. Space Adm., Cleveland, OH, USA
SO Lubr. Eng. (1991), 47(4), 298-303
CODEN: LUENAG; ISSN: 0024-7154
DT Journal
LA English
CC 56-4 (Nonferrous Metals and Alloys)
AB A high-temp., **self-lubricating** powder-metallurgy composite, PM212, was evaluated. The composite consists of **metal-bonded** Cr carbide, 70, Ag 15, and BaF2/CaF2 eutectic 15 wt.%. The carbide acts as a wear-resistant matrix and the Ag and fluorides act as low- and high-temp. lubricants, resp. The composite is prepd. by sequential cold pressing, cold isostatic pressing, and sintering. Hemispherically tipped composite wear pins were prepd. and slid against superalloy disks at 25-850.degree. in air in a pin-on-disk tribometer. Friction coeffs. range from 0.29 to 0.38, and wear of both the composite pins and superalloy disks was moderate to low in the 10-5-10-6 mm3/N-m range. According to preliminary tests, the compressive strength is .gtoreq.130 MPa at 25-900.degree.. This composite has promise for use as seal inserts, bushings, and small inside diam. parts where plasma-sprayed coatings are impractical or too costly.
ST chromium carbide composite antifriction material; friction coeff chromium carbide composite
IT Antifriction materials
(chromium carbide, **self-lubricating**, for high-temp. use)
IT Friction
(coeff. of, during high-temp. wear of chromium carbide composite)
IT 137164-06-8, PM212
(antifriction composite, tribol. properties of, for high-temp. use)

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=> file reg
FILE 'REGISTRY' ENTERED AT 11:52:18 ON 27 MAY 1997
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STRUCTURE FILE UPDATES:  26 MAY 97  HIGHEST RN 189261-10-7
DICTIONARY FILE UPDATES: 26 MAY 97  HIGHEST RN 189261-10-7

TSCA INFORMATION NOW CURRENT THROUGH DECEMBER 1996

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

=> display history full l1-

     (FILE 'HOME' ENTERED AT 10:33:46 ON 27 MAY 1997)

     FILE 'HCAPLUS' ENTERED AT 10:34:58 ON 27 MAY 1997
L1            50 SEA DELLACORTE ?/AU
L2        164944 SEA COMPOSITE#
L3            20 SEA L1 AND L2
L4          1965 SEA SELFLUBRIC? OR SELF(2A)LUBRIC?
L5         24642 SEA METAL####(2A)BOND?
L6            12 SEA L1 AND L4
L7             7 SEA L1 AND L5
L8             5 SEA L6 AND L7

     FILE 'REGISTRY' ENTERED AT 10:41:50 ON 27 MAY 1997
L9        119973 SEA (CR(L)(NI OR CO))/ELS AND AYS/CI
L10          334 SEA (A1 OR A2)/PG (L) F/ELS (L) 2/ELC.SUB
L11          170 SEA (CR(L)O)/ELS (L) 2/ELC.SUB

     FILE 'HCA' ENTERED AT 10:47:05 ON 27 MAY 1997
L12        86067 SEA L10 OR (LITHIUM# OR LI OR SODIUM# OR NA OR POTASSIUM#
                  OR K OR MAGNESIUM# OR MG OR CALCIUM# OR CA OR BARIUM# OR
                  BA OR STRONTIUM# OR SR)(W)(FLUORIDE# OR MONOFLUORIDE# OR
                  DIFLUORIDE#) OR LIF OR NAF OR KF OR MGF2 OR CAF2 OR BAF2
                  OR SRF2
L13        43083 SEA L11 OR (CHROMIUM# OR CHROME# OR CR)(W)(OXIDE# OR MONO
                 XIDE# OR DIOXIDE# OR TRIOXIDE# OR TETRAOXIDE# OR TETROXID
                 E# OR PENTAOXIDE# OR PENTOXIDE# OR HEXAOXIDE# OR HEXOXIDE
                 #) OR CRO OR CRO2 OR CRO3
L14          489 SEA L13(3A)(BOND? OR BOUND OR BIND? OR COORD# OR COORDINA
                 T?)
L15       162982 SEA COMPOSITE#

     FILE 'REGISTRY' ENTERED AT 10:54:09 ON 27 MAY 1997
                 E SILVER/CN
L16             1 SEA SILVER/CN
                 E GOLD/CN
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L17             1 SEA GOLD/CN
                  E PLATINUM/CN
L18             1 SEA PLATINUM/CN
                  E PALLADIUM/CN
L19             1 SEA PALLADIUM/CN
                  E RHODIUM/CN
L20             1 SEA RHODIUM/CN
                  E COPPER/CN
L21             1 SEA COPPER/CN

    FILE 'HCA' ENTERED AT 10:58:34 ON 27 MAY 1997
L22        489880 SEA (L16 OR L17 OR L18 OR L19 OR L20 OR L21) OR (SILVER#
                  OR AG OR GOLD# OR AU OR PLATINUM# OR PT OR PALLADIUM# OR
                  PD OR RHODIUM# OR RH OR COPPER# OR CU)(2A)(LUBRIC? OR MET
                  AL#### OR ELEMENTAL)

    FILE 'REGISTRY' ENTERED AT 10:58:56 ON 27 MAY 1997
L23        119973 SEA L9 OR L9
L24         29973 SEA RAN=(,91500-55-9) L9 OR L9
L25         30000 SEA RAN=(91500-58-2,128727-23-1) L9 OR L9
L26         30000 SEA RAN=(128727-24-2,155075-48-2) L9 OR L9
L27         30000 SEA RAN=(155075-49-3,) L9 OR L9

    FILE 'HCA' ENTERED AT 11:04:02 ON 27 MAY 1997
L28        114597 SEA L24
L29         17331 SEA L25
L30         10719 SEA L26
L31          7325 SEA L27
L32           977 SEA L13 AND L12
L33             8 SEA L32 AND L14
L34            35 SEA L32 AND L15
L35        156283 SEA (LUBRIC? OR GREAS? OR ANTIFRIC? OR ANTIWEAR? OR ANTIC
                  ORRO? OR ANTIRUST? OR ANTIOXID? OR ANTI(W)(FRIC? OR WEAR?
                   OR CORRO? OR RUST? OR OXID?) OR SLICK? OR SLIPP? OR OLEA
                  GINOUS?)/BI,AB
L36         12794 SEA ((GEAR? OR ENGINE# OR CRANKCASE? OR MOTOR# OR TRANSMI
                  SSION? OR HYDRAUL? OR MACHINE? OR (2 OR 4 OR TWO OR FOUR)
                  (W)(CYCLE# OR STROKE#))(2A)(FLUID# OR OIL#))/BI,AB
L37           112 SEA SELFLUBRIC?
L38            10 SEA L34 AND (L35 OR L36 OR L37)
L39  DEL    4086 S L35 AND L21
L39  DEL    6029 S L35 AND L22
L39            81 SEA L32 AND L22
L40             9 SEA L34 AND L22
L41             4 SEA L34 AND (L28 OR L29 OR L30 OR L31)
L42            59 SEA L32 AND (L28 OR L29 OR L30 OR L31)
L43             8 SEA L42 AND (L35 OR L36 OR L37)
L44         59706 SEA METAL####(2A)(BOND? OR BOUND? OR BIND? OR COORD# OR C
                  OORDINAT? OR ADHESI? OR ADHERE? OR HOLD? OR GRIP? OR GRAS
                  P?)
L45            13 SEA L32 AND L44
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     FILE 'WPIDS, EMA, METADEX, CERAB' ENTERED AT 11:35:21 ON 27 MAY 1997
L46        8895 SEA (CHROMIUM# OR CHROME# OR CR)(W)(OXIDE# OR MONOXIDE# O
                R DIOXIDE# OR TRIOXIDE# OR TETRAOXIDE# OR TETROXIDE# OR P
                ENTAOXIDE# OR PENTOXIDE# OR HEXAOXIDE# OR HEXOXIDE#) OR C
                RO OR CRO2 OR CRO3
L47         106 SEA (CHROMIUM# OR CHROME# OR CR)(W)(OXIDE# OR MONOXIDE# O
                R DIOXIDE# OR TRIOXIDE# OR TETRAOXIDE# OR TETROXIDE# OR P
                ENTAOXIDE# OR PENTOXIDE# OR HEXAOXIDE# OR HEXOXIDE#) OR C
                RO OR CRO2 OR CRO3
L48        1402 SEA (CHROMIUM# OR CHROME# OR CR)(W)(OXIDE# OR MONOXIDE# O
                R DIOXIDE# OR TRIOXIDE# OR TETRAOXIDE# OR TETROXIDE# OR P
                ENTAOXIDE# OR PENTOXIDE# OR HEXAOXIDE# OR HEXOXIDE#) OR C
                RO OR CRO2 OR CRO3
L49         262 SEA (CHROMIUM# OR CHROME# OR CR)(W)(OXIDE# OR MONOXIDE# O
                R DIOXIDE# OR TRIOXIDE# OR TETRAOXIDE# OR TETROXIDE# OR P
                ENTAOXIDE# OR PENTOXIDE# OR HEXAOXIDE# OR HEXOXIDE#) OR C
                RO OR CRO2 OR CRO3
     TOTAL FOR ALL FILES
L50       10665 SEA (CHROMIUM# OR CHROME# OR CR)(W)(OXIDE# OR MONOXIDE# O
                R DIOXIDE# OR TRIOXIDE# OR TETRAOXIDE# OR TETROXIDE# OR P
                ENTAOXIDE# OR PENTOXIDE# OR HEXAOXIDE# OR HEXOXIDE#) OR C
                RO OR CRO2 OR CRO3
L51       34141 SEA METAL####(2A)(BOND? OR BOUND? OR BIND? OR COORD# OR C
                OORDINAT? OR ADHESI? OR ADHERE? OR HOLD? OR GRIP? OR GRAS
                P?)
L52         869 SEA METAL####(2A)(BOND? OR BOUND? OR BIND? OR COORD# OR C
                OORDINAT? OR ADHESI? OR ADHERE? OR HOLD? OR GRIP? OR GRAS
                P?)
L53        5548 SEA METAL####(2A)(BOND? OR BOUND? OR BIND? OR COORD# OR C
                OORDINAT? OR ADHESI? OR ADHERE? OR HOLD? OR GRIP? OR GRAS
                P?)
L54         450 SEA METAL####(2A)(BOND? OR BOUND? OR BIND? OR COORD# OR C
                OORDINAT? OR ADHESI? OR ADHERE? OR HOLD? OR GRIP? OR GRAS
                P?)
     TOTAL FOR ALL FILES
L55       41008 SEA L44
L56      107997 SEA COMPOSITE#
L57       46067 SEA COMPOSITE#
L58       39074 SEA COMPOSITE#
L59        9877 SEA COMPOSITE#
     TOTAL FOR ALL FILES
L60      203015 SEA COMPOSITE#
L61        2699 SEA SELFLUBRIC? OR SELF?(2A)LUBRIC?
L62         119 SEA SELFLUBRIC? OR SELF?(2A)LUBRIC?
L63         583 SEA SELFLUBRIC? OR SELF?(2A)LUBRIC?
L64          18 SEA SELFLUBRIC? OR SELF?(2A)LUBRIC?
     TOTAL FOR ALL FILES
L65        3419 SEA SELFLUBRIC? OR SELF?(2A) LUBRIC?
L66       32191 SEA (SILVER# OR AG OR GOLD# OR AU OR PLATINUM# OR PT OR P
                ALLADIUM# OR PD OR RHODIUM# OR RH OR COPPER# OR CU)(2A)(L
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UBRIC? OR METAL#### OR ELEMENTAL)
L67 448 SEA (SILVER# OR AG OR GOLD# OR AU OR PLATINUM# OR PT OR P ALLADIUM# OR PD OR RHODIUM# OR RH OR COPPER# OR CU)(2A)(L UBRIC? OR METAL#### OR ELEMENTAL)
L68 10299 SEA (SILVER# OR AG OR GOLD# OR AU OR PLATINUM# OR PT OR P ALLADIUM# OR PD OR RHODIUM# OR RH OR COPPER# OR CU)(2A)(L UBRIC? OR METAL#### OR ELEMENTAL)
L69 291 SEA (SILVER# OR AG OR GOLD# OR AU OR PLATINUM# OR PT OR P ALLADIUM# OR PD OR RHODIUM# OR RH OR COPPER# OR CU)(2A)(L UBRIC? OR METAL#### OR ELEMENTAL)
TOTAL FOR ALL FILES
L70 43229 SEA (SILVER# OR AG OR GOLD# OR AU OR PLATINUM# OR PT OR P ALLADIUM# OR PD OR RHODIUM# OR RH OR COPPER# OR CU)(2A)(L UBRIC? OR METAL#### OR ELEMENTAL)
L71 12085 SEA (LITHIUM# OR LI OR SODIUM# OR NA OR POTASSIUM# OR K OR MAGNESIUM# OR MG OR CALCIUM# OR CA OR BARIUM# OR BA OR STRONTIUM# OR SR)(W)(FLUORIDE# OR MONOFLUORIDE# OR DIFLUORIDE#) OR LIF OR NAF OR KF OR MGF2 OR CAF2 OR BAF2 OR SRF2
L72 358 SEA (LITHIUM# OR LI OR SODIUM# OR NA OR POTASSIUM# OR K OR MAGNESIUM# OR MG OR CALCIUM# OR CA OR BARIUM# OR BA OR STRONTIUM# OR SR)(W)(FLUORIDE# OR MONOFLUORIDE# OR DIFLUORIDE#) OR LIF OR NAF OR KF OR MGF2 OR CAF2 OR BAF2 OR SRF2
L73 3075 SEA (LITHIUM# OR LI OR SODIUM# OR NA OR POTASSIUM# OR K OR MAGNESIUM# OR MG OR CALCIUM# OR CA OR BARIUM# OR BA OR STRONTIUM# OR SR)(W)(FLUORIDE# OR MONOFLUORIDE# OR DIFLUORIDE#) OR LIF OR NAF OR KF OR MGF2 OR CAF2 OR BAF2 OR SRF2
L74 1366 SEA (LITHIUM# OR LI OR SODIUM# OR NA OR POTASSIUM# OR K OR MAGNESIUM# OR MG OR CALCIUM# OR CA OR BARIUM# OR BA OR STRONTIUM# OR SR)(W)(FLUORIDE# OR MONOFLUORIDE# OR DIFLUORIDE#) OR LIF OR NAF OR KF OR MGF2 OR CAF2 OR BAF2 OR SRF2
TOTAL FOR ALL FILES
L75 16884 SEA (LITHIUM# OR LI OR SODIUM# OR NA OR POTASSIUM# OR K OR MAGNESIUM# OR MG OR CALCIUM# OR CA OR BARIUM# OR BA OR STRONTIUM# OR SR)(W)(FLUORIDE# OR MONOFLUORIDE# OR DIFLUORIDE#) OR LIF OR NAF OR KF OR MGF2 OR CAF2 OR BAF2 OR SRF2
L76 147 SEA L71 AND L46
L77 1 SEA L72 AND L47
L78 26 SEA L73 AND L48
L79 2 SEA L74 AND L49
TOTAL FOR ALL FILES
L80 176 SEA L75 AND L50
L81 3 SEA L76 AND L56
L82 0 SEA L77 AND L57
L83 3 SEA L78 AND L58
L84 1 SEA L79 AND L59
TOTAL FOR ALL FILES

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L85             7 SEA L80 AND L60
L86             3 SEA L76 AND L66
L87             0 SEA L77 AND L67
L88             0 SEA L78 AND L68
L89             0 SEA L79 AND L69
     TOTAL FOR ALL FILES
L90             3 SEA L80 AND L70
L91             0 SEA L76 AND L61
L92             0 SEA L77 AND L62
L93             1 SEA L78 AND L63
L94             0 SEA L79 AND L64
     TOTAL FOR ALL FILES
L95             1 SEA L80 AND L65

     FILE 'METADEX' ENTERED AT 11:49:14 ON 27 MAY 1997
L96             3 SEA L83 OR L93

     FILE 'WPIDS' ENTERED AT 11:49:38 ON 27 MAY 1997
L97             6 SEA L81 OR L86

     FILE 'HCA' ENTERED AT 11:50:09 ON 27 MAY 1997
L98            38 SEA L33 OR L38 OR L40 OR L41 OR L43 OR L45
L99            19 SEA L34 NOT L98   titles and selected abstracts

     FILE 'REGISTRY' ENTERED AT 11:52:18 ON 27 MAY 1997


     FILE HOME

     FILE HCAPLUS
     FILE COVERS 1967 - 27 May 1997  VOL 126 ISS 22
     FILE LAST UPDATED: 27 May 1997  (970527/ED)

      This file contains CAS Registry Numbers for easy and accurate
      substance identification.

     FILE REGISTRY
     STRUCTURE FILE UPDATES:  26 MAY 97  HIGHEST RN 189261-10-7
     DICTIONARY FILE UPDATES: 26 MAY 97  HIGHEST RN 189261-10-7

     TSCA INFORMATION NOW CURRENT THROUGH DECEMBER 1996

       Please note that search-term pricing does apply when
       conducting SmartSELECT searches.

     FILE HCA
     FILE COVERS 1967 - 27 May 1997 (970527/ED)  VOL 126 ISS 22

      This file contains CAS Registry Numbers for easy and accurate
      substance identification.
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      FILE WPIDS
      FILE LAST UPDATED: 22 MAY 97              <970522/UP>
      >>>UPDATE WEEKS:
      MOST RECENT DERWENT WEEK            9721   <199721/DW>
      DERWENT WEEK FOR CHEMICAL CODING:   9714
      DERWENT WEEK FOR POLYMER INDEXING:  9718
      DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE
      >>> D COST AND SET NOTICE DO NOT REFLECT SUBSCRIBER DISCOUNTS -
                                        SEE HELP COST FOR DETAILS <<<
      >>> PCT PUBLICATIONS FROM 19 DECEMBER 1996  - SEE NEWS <<<

      FILE EMA
      FILE LAST UPDATED: 18 MAY 97      <970518/UP>
      FILE COVERS 1986 TO DATE.

      FILE METADEX
      FILE LAST UPDATED: 11 MAY 97      <970511/UP>
      FILE COVERS 1966 TO DATE.

      FILE CERAB
      FILE COVERS 1976 TO 23 MAY 1997 (970523/ED)

=> file cerab
FILE 'CERAB' ENTERED AT 11:54:09 ON 27 MAY 1997
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FILE COVERS 1976 TO 23 MAY 1997 (970523/ED)

=> d l84 1 all

L84  ANSWER 1 OF 1  CERAB  COPYRIGHT 1997 ACerS
AN   7309616  CERAB
TI   Improvement in tribological properties of chromium
   oxide coating at high temperature by solid lubricants.
AU   Liu, G. H.; Robbevalloire, F.; Gras, R.; Blouet, J.
SO   Wear, (1993)  160(1)181-4.  CODEN: WEARAH  ISSN: 0043-1648
DT   Journal
LA   English
AB   Experimental results show that the solid lubricants CaF2
     and BaF2 in composite coatings reduce and
     stabilize the friction coeff., decrease the wear rate, prevent
     surface damage, and improve the load capacity of Cr2O3 coating at
     425.degree.C in air.
CC   deformation, strength, fracture
CT   chromia; lubricants/lubrication; friction; wear
ET   Ca*F; CaF2; Ca cp; cp; F cp; Ba*F; BaF2; Ba cp; Cr*O; Cr2O3; Cr cp;
     O cp

=> file metadex
FILE 'METADEX' ENTERED AT 11:54:37 ON 27 MAY 1997
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FILE LAST UPDATED: 11 MAY 97 <970511/UP>
FILE COVERS 1966 TO DATE.

=> d l96 1-3 all

L96 ANSWER 1 OF 3 METADEX COPYRIGHT 1997 ASM/IoM
AN 96(9):57-1589 METADEX
TI Preliminary Evaluation of PS300: a New Self-lubricating High Temperature Composite Coating for Use to 800 deg C.
AU DellaCorte, C.; Edmonds, B.J.
NR NASA TM-107056
SO Preliminary Evaluation of PS300: A New Self-Lubricating High Temperature Composite Coating for Use to 800 deg C, NASA Centre for Aerospace Information, P.O. Box 8757, Baltimore, MD 21240-0757, USA. (1995) Pp 5, Photomicrographs, Graphs, 12 ref.
DT Report
CY United States
LA English
AB This paper introduces PS300, a plasma sprayed, self-lubricating composite coating for use in sliding contacts at temperatures to 800 deg C. PS300 is a metal bonded chrome oxide coating with silver and BaF2/CaF2 eutectic solid lubricant additives. PS300 is similar to PS200, a chromium carbide based coating, which is currently being investigated for a variety of tribological applications. In pin-on-disk testing up to 650 deg C, PS300 exhibited comparable friction and wear properties to PS200. The PS300 matrix, which is predominantly chromium oxide rather than chromium carbide, does not require diamond grinding and polishes readily with silicon carbide abrasives, greatly reducing manufacturing costs compared to PS200. It is anticipated that PS300 has potential for sliding bearing and seal applications in both aerospace and general industry.
CC 57 Finishing
CT Report; Engine components: Coating; Plasma spraying; Sprayed coatings: Development; Self lubrication; Solid lubricants
ET Ba*F; BaF2; Ba cp; cp; F cp; Ca*F; CaF2; Ca cp

L96 ANSWER 2 OF 3 METADEX COPYRIGHT 1997 ASM/IoM
AN 93(7):57-851 METADEX
TI Improvement in Tribological Properties of Chromium Oxide Coating at High Temperature by Solid Lubricants.
AU Liu, G.H. (Institut Superieur des Materiaux et de la Construction Mecanique); Robbevalloire, F. (Institut Superieur des Materiaux et de la Construction Mecanique); Gras, R. (Institut Superieur des Materiaux et de la Construction Mecanique); Blouet, J. (Institut Superieur des Materiaux et de la Construction Mecanique)
SO Wear (2 Jan. 1993) 160, (1), 181-189, Photomicrographs, Graphs, 16 ref.
ISSN: 0043-1648
DT Journal
CY Switzerland

LA English
AB The aim of the investigation was to improve the tribological properties of chromium oxide (Cr2O3) coating for applications in het engines at high temperatures. The experimental results show that the solid lubricants CaF2 and BaF2 in composite coatings can reduce and stabilize the friction coefficient, decrease the wear rate, prevent surface damage, and improve the load capacity of Cr2O3 coating at 425 deg C in air. In tribotests at 0.2-1.0 MPa it appears that the optimal solid lubricant content is approx 14-21% for Cr2O3-CaF2 coatings and 20-31% for Cr2O3-BaF2 coatings. Auger electron spectroscopy and energy-dispersive spectroscopy analyses show that the friction coefficient is correlated with the amount of solid lubricant in contact areas: the friction coefficient decreases with solid lubricant content if it is < 2-4%, then stabilizes at approx 0.20-0.25. 35CD4 Cr-Mo steel substrates are used.
CC 57 Finishing
CT Journal Article; Chromium molybdenum steels: Coating; Engine components: Coating; Chromating; Chromate coatings: Mechanical properties; Solid lubricants; Lubrication; Frictional wear; Wear rate; Friction
ALI 35CD4 CCA: SACM
ET Cr*O; Cr2O3; Cr cp; cp; O cp; Ca*F; CaF2; Ca cp; F cp; Ba*F; BaF2; Ba cp; Ca*Cr*F*O; Ca sy 4; sy 4; Cr sy 4; F sy 4; O sy 4; Cr2O3-CaF2; Ba*Cr*F*O; Ba sy 4; Cr2O3-BaF2; Cr*Mo; Cr sy 2; sy 2; Mo sy 2; Cr-Mo

L96 ANSWER 3 OF 3 METADEX COPYRIGHT 1997 ASM/IoM
AN 93(6):57-37 METADEX
TI Improvement in Tribological Properties of Chromium Oxide Coating at High Temperature by Solid Lubricants.
AU Liu, G.H. (Institut Superieur des Materiaux et de la Construction Mecanique); Robbevalloire, F. (Institut Superieur des Materiaux et de la Construction Mecanique); Gras, R. (Institut Superieur des Materiaux et de la Construction Mecanique); Blouet, J. (Institut Superieur des Materiaux et de la Construction Mecanique)
SO Wear (2 Jan. 1993) 160, (1), 181-189, Photomicrographs, Graphs, 16 ref.
DT Journal
LA English
AB The aim of the investigation was to improve the tribological properties of chromium oxide (Cr2O3) coating for applications in het engines at high temperatures. The experimental results show that the solid lubricants CaF2 and BaF2 in composite coatings can reduce and stabilize the friction coefficient, decrease the wear rate, prevent surface damage, and improve the load capacity of Cr2O3 coating at 425 deg C in air. In tribotests at 0.2-1.0 MPa it appears that the optimal solid lubricant content is approx 14-21% for Cr2O3-CaF2 coatings and 20-31% for Cr2O3-BaF2 coatings. Auger electron spectroscopy and energy-dispersive spectroscopy analyses show that the friction coefficient is correlated with the amount of solid lubricant in contact areas: the friction coefficient decreases with

solid lubricant content if it is < 2-4%, then stabilizes at approx 0.20-0.25. 35CD4 Cr-Mo steel substrates are used.
CC 57 Finishing
CT Journal Article; Chromium molybdenum steels: Coating; Engine components: Coating; Chromating; Chromate coatings: Mechanical properties; Solid lubricants; Lubrication; Frictional wear; Wear rate; Friction
ALI 35CD4 CCA: SACM
ET Cr*O; Cr2O3; Cr cp; cp; O cp; Ca*F; CaF2; Ca cp; F cp; Ba*F; BaF2; Ba cp; Ca*Cr*F*O; Ca sy 4; sy 4; Cr sy 4; F sy 4; O sy 4; Cr2O3-CaF2; Ba*Cr*F*O; Ba sy 4; Cr2O3-BaF2; Cr*Mo; Cr sy 2; sy 2; Mo sy 2; Cr-Mo

=> file wpids
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>>>UPDATE WEEKS:
MOST RECENT DERWENT WEEK 9721 <199721/DW>
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DERWENT WEEK FOR POLYMER INDEXING: 9718
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=> d l97 1-6 ibib abs

L97 ANSWER 1 OF 6 WPIDS COPYRIGHT 1997 DERWENT INFORMATION LTD
ACCESSION NUMBER: 96-009049 [01] WPIDS
DOC. NO. CPI: C96-002714
TITLE: Stronger plastic foam for thermal insulation - contains resol phenol formaldehyde, carbamido formaldehyde, and epoxy resins with surfactant and metal oxide additives.
DERWENT CLASS: A21 A93
INVENTOR(S): KARAZNEVICH, V K; KISELEV, V M; KUZNETSOVA, I N
PATENT ASSIGNEE(S): (TEOS-R) TEOSOL CO LTD
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
RU 2034001	C1	950430	(9601)*		5

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
RU 2034001	C1	SU 92-5035331	920401

PRIORITY APPLN. INFO: SU 92-5035331 920401
AN 96-009049 [01] WPIDS
AB RU 2034001 C UPAB: 960108
A more stable plastic foam comprises (mass%): resol phenol formaldehyde resin FRV-IA 41.1-48.8; carbamidoformaldehyde resin (**KF**-MI-15) 4.8-6.7; foaming/hardening agent VAG-3 (condensation prod. of sulphophenylureas, formaldehyde, ortho-phosphoric acid, and morpholine resin) 28.5-29.6; **chromium oxide** 1.1-2.0; aluminium oxide 7.3-8.5; surfactant (OP-7) 2.1-3.5; aluminium powder 3.2-4.0; epoxy resin 4.2-4.6. The **composite** is moulded at 24-160 V at a current density of 170-180 microA for 10-15 min.

USE-The plastic is used for thermal insulation in the construction industry.

ADVANTAGE-The plastic foam has a density of 50 kg/m3 (cf. 60 kg/m3 for prototype), a tensile strength of 0.6-0.7 MPa (14.3% higher than the prototype), a compression strength of 0.9-1.1 MPa (175% higher), and water absorbency (after 24hr.) of 3.5-3.8 mass% (60% lower), and is stable up to 210 deg.C.
Dwg.0/0

L97 ANSWER 2 OF 6 WPIDS COPYRIGHT 1997 DERWENT INFORMATION LTD
ACCESSION NUMBER: 92-091174 [12] WPIDS
DOC. NO. CPI: C92-041853
TITLE: Coating material for coating stokes and ladles - consisting of pref. fluoride(s) of calcium, sodium, etc. and refractories pref. oxide(s) of aluminium, titanium, dispersed in solvent.
DERWENT CLASS: L02 M22
PATENT ASSIGNEE(S): (KURR) KUROSAKI REFRACTORIES CO
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 04026561	A	920129	(9212)*		3

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 04026561	A	JP 90-129445	900518

PRIORITY APPLN. INFO: JP 90-129445 900518
AN 92-091174 [12] WPIDS
AB JP04026561 A UPAB: 931006
A coating material comprises a solvent having dispersed therein a solid matter contg. 3-60 wt.% of a fluorine cpd. having a m.pt. of

700 deg.C or higher and balance other refractory materials and binders.

The fluorine cpd. is pref. **Ca fluoride**, **Mg fluoride**, Al fluoride, **Na fluoride**, and **K fluoride**; also usable are cpds. contg. the same. The refractory materials may be, e.g., Al oxide, Ti oxide, **Cr oxide**, Co oxide, SiC, Si nitride, B4C, etc.

USE/ADVANTAGE - Provides a coating agent for coating stokes, ladles, etc., which are used in melting and casting low m.**pt**. **metals**, such as Al, Zn, Sn, etc., which lengthens life of the tools and vessels coated.

0/0

L97 ANSWER 3 OF 6 WPIDS COPYRIGHT 1997 DERWENT INFORMATION LTD
ACCESSION NUMBER: 91-248581 [34] WPIDS
DOC. NO. NON-CPI: N91-189380
DOC. NO. CPI: C91-107890
TITLE: Coating material for metal and ceramic tools - comprises refractory material, binder and fluorine cpd. e.g. **calcium fluoride**.
DERWENT CLASS: G02 L02 M13 P53
PATENT ASSIGNEE(S): (KURR) KUROSAKI REFRACTORIES CO
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 03161162	A	910711	(9134)*		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 03161162	A	JP 89-300250	891118

PRIORITY APPLN. INFO: JP 89-300250 891118
AN 91-248581 [34] WPIDS
AB JP03161162 A UPAB: 930928
Coating material comprises a refractory raw material and a binder, with (in addn.) to 100% of solid content, 5-100 wt.% of a fluorine cpd. having a m.pt. of 700 deg.C or higher.

(Claimed) The F-cpd. is pref. CaF; the remaining solid content comprises, in addn. to 100% of solid content, 3-80 wt.% of talc. Other usable F-cpd. include **MgF2**, Al2F3, **NaF**, and **KF**; the refractory materials are, e.g., Al-oxide, Ti-oxide, **Cr-oxide**, Co-oxide, SiC, Si nitride and B carbide; binders include Na silicates, Zr salts, phosphates, silane cpds., metal alkoxides, metal acylates, etc.

USE/ADVANTAGE - Provides a coating material for coating metal

(alloy) and ceramic tools and appts. for casting low m.**pt.** **metals** such as Al(m.pt. 660.4 deg.C), Zn (m.pt. 419.6 deg.C), and Sn (m.pt. 232.0 deg.C), as well as their alloys. 0/1

L97 ANSWER 4 OF 6 WPIDS COPYRIGHT 1997 DERWENT INFORMATION LTD
ACCESSION NUMBER: 89-367801 [50] WPIDS
DOC. NO. CPI: C89-163122
TITLE: Protection of anode for chromium plating - comprises adding lead salt to bath with anode having metal support with lead oxide and **platinum** Gp. **metal** oxide intermediate layers.
DERWENT CLASS: M11
PATENT ASSIGNEE(S): (JCAR) JAPAN CARLIT CO LTD
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 01275793	A	891106	(8950)*		3
JP 03029873	B	910425	(9121)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 01275793	A	JP 88-104181	880428
JP 03029873	B	JP 88-104181	880428

PRIORITY APPLN. INFO: JP 88-104181 880428
AN 89-367801 [50] WPIDS
AB JP01275793 A UPAB: 930923
The anode is protected by adding a Pb-salt to give 1-50 ppm Pb ions in Cr-plating bath used in Cr-plating. The anode comprises a matrix formed by spot welding valve metal expanded metal on the valve metal plate, on which PbO is deposited using an intermediate layer comprising **Pt**-group **metal** (oxides).

USE/ADVANTAGE - Used to extend the service life of anodes for Cr-plating.

In an example, a PbO electrode was made by spot welding Ti-expanded sheet (50 mm Lx32 mm W: 2.0 mm and 1.0 mm diagonal line, 0.12 mm sheet thickness, and 0.18 mm width of strand) on Ti plate (200 mm Lx 15 mm Wx 1 mm t). The matrix is degreased and etched and Pt-chloride and Ir-chloride soln. of isopropyl alcohol are applied on the matrix. The soln. is dried and fired at 500 deg.C to form intermediate layer of oxide of Pt and of Ir. A PbO2 layer about 0.5 mm thickness is deposited from the soln. of Pb-nitrate, and Cu-sulphate using the electrode as anodes. The PbO electrode obtd. was used as an anode in CR plating in the soln. contg. 250 g/l

CrO3, 10 g/l **NaF**, 1 g/l H2SO4, and 0.05 g/l basic Pb-carbonate with 50 A/dm2 current density. The PbO2 anode could be used for 4 months plating operation with no corrosion of the ti-matrix.
0/0

L97 ANSWER 5 OF 6 WPIDS COPYRIGHT 1997 DERWENT INFORMATION LTD
ACCESSION NUMBER: 82-86321E [41] WPIDS
CROSS REFERENCE: 87-320645 [45]
TITLE: Flexible polymer has transparent bi-component coating - to reduce gas and vapour permeability while withstanding steam.
DERWENT CLASS: A94 L01 M13 P73 Q34
INVENTOR(S): MATTEUCCI, J S; PHILLIPS, R; SHEVLIN, C; PHILLIPS, P W; SHEVLIN, C M
PATENT ASSIGNEE(S): (OPTI-N) OPTICAL COATING LABORATORY INC
COUNTRY COUNT: 14
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
GB 2096020	A	821013	(8241)*		15
EP 62334	A	821013	(8242)	EN	
R: AT BE CH DE FR LI LU NL SE					
FR 2503101	A	821008	(8246)		
DE 3212377	A	821118	(8247)		
JP 57189848	A	821122	(8301)		
GB 2096020	B	850403	(8514)		
CA 1209414	A	860812	(8637)		
EP 62334	B	880120	(8803)	EN	
R: AT BE CH DE FR LI LU NL SE					
DE 3278017	G	880225	(8809)		
KR 8904085	B	891020	(9041)#		
IT 1195919	B	881103	(9109)		
JP 05018709	B	930312	(9313)		12
DE 3212377	C2	930715	(9328)		13

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
GB 2096020	A	GB 82-9604	820401
EP 62334	A	EP 82-102844	820402
JP 05018709	B	JP 82-55932	820403
DE 3212377	C2	DE 82-3212377	820402

FILING DETAILS:

PATENT NO	KIND		PATENT NO
JP 05018709	B	Based on	JP 57189848

PRIORITY APPLN. INFO: US 81-250731 810403; US 82-367382 820412
AN 82-86321E [41] WPIDS
CR 87-320645 [45]
AB GB 2096020 A UPAB: 931116
A flexible polymer substrate has a coating which is substantially transparent to visible light and capable of withstanding sterilisation by superheated water or steam and lowers the gas and vapour permeability of the substrate. The coating is formed of two materials which may be co-deposited to form a single thin film or may be deposited as successive layers.

A co-deposited coating layer can be a cermet layer comprising a mixt. of chromium and SiO contg. at least 10 wt.% Cr, pref. at least 20%. Alternatively an adhesion layer capable of withstanding sterilisation can be overcoated with a barrier layer of reduced permeability.

Food and medical products are packed in the coated polymer, e.g. intravenous solns. are packaged in sealed bags. The transparent coating allows viewing of the product to check its quality, unlike aluminium foil currently used.

ABEQ GB 2096020 B UPAB: 930915
An article comprising a flexible polymer substrate and a thin film coating carried on at least one surface of said substrate and characterised by the properties of at least partial transparency in the visible portion of the electromagnetic radiation spectrum, the capability of withstanding a superheated water or steam sterilisation operation, and substantially lower gas and vapour permeability compared to uncoated polymer substrate; said thin film coating being formed by a process of depositing on said substrate surface at least two preselected inorganic materials either in prearranged sequential deposition steps to form a thin film adhesion layer of a first one of said materials directly on said substrate to maintain adherence of said thin film coating to said substrate during said sterilisation operation and a thin film barrier layer of a second one of said materials to provide a barrier to gas and vapour permeation through said thin film coating and thereby substantially lower gas and vapour permeability for the overall article or by simultaneous deposition of both of said materials at prearranged rates to form a single **composite** thin layer having both an adhesion characteristic to maintain adherence of said **composite** thin film layer to said substrate during said sterilisation operation and a barrier layer characteristic to provide a barrier to gas and vapour permeation through said thin film coating and thereby substantially lower gas and vapour permeability for the overall article.

ABEQ EP 62334 B UPAB: 930915
A flexible film material comprising a flexible polymer substrate and a barrier coating formed on the substrate to reduce the gas and vapour permeability of the film; characterised in that the barrier coating comprises a substantially transparent thin film coating of at least two material components deposited on the substrate

sequentially or simultaneously to provide a first layer portion serving as an adhesion layer of sufficient strength to enable the thin film coating to remain firmly bonded to the polymer substrate after being subjected to a superheated water or steam sterilisation operation and a second layer portion serving as a barrier to prevent permeation of gas and vapour from one side of the coated substrate to the other.

ABEQ DE 3212377 C UPAB: 931116
Flexible polymer film for packaging consists of a transparent polymer substrate on which there is a thin film coating, consisting of a first layer as adhesion layer and a second layer as insulating layer. The adhesion layer is chosen from a gp. of Cr, Ta, Mo, **Cr oxides**, Cr-Ta and Cr-Ni alloys, a simultaneously deposited mixture of Cr and Si monoxide contg. at least 10 wt. % Cr, and a Pb-Al quartz glass compsn. Insulating layer is chosen from the gp. of Si oxides, e.g, Si monoxide and Si dioxide, as well as mixtures of Si dioxide with glass modifiers, eg., Mg, Ba, Ca oxides, fluorides of alkaline earth elements, e.g, **Mg fluoride**, and simultaneous Cr+Si monoxide deposit.
ADVANTAGE - Can be sterilised, low gas and vapour permeability.
Dwg.0/1

L97 ANSWER 6 OF 6 WPIDS COPYRIGHT 1997 DERWENT INFORMATION LTD
ACCESSION NUMBER: 71-61914S [39] WPIDS
TITLE: Homogeneous microcrystalline glass mater-ial.
DERWENT CLASS: L03
PATENT ASSIGNEE(S): (GENE) GENERAL ELECTRIC CO
COUNTRY COUNT: 2
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
DE 1471163	B		(7139)*		
JP 47000835	B		(7202)		

PRIORITY APPLN. INFO: US 59-841681 590923
AN 71-61914S [39] WPIDS
AB DE 1471163 B UPAB: 930831
Hard, dense, electrically insulating, mechanically strong material consisting of microcrystalline glass contg. (in %) Si2O 4-30, LiO2 up to 80, Al2O3 3-25, and up to 15% of Na2O, K2O, B2O3, **CaF2**, **CrO2**, BaO, CaO, ZnO, MgO, **NaF** and/or **KF** is produced by heating the glass first up to its softening temp. of 650-700 degrees C for 15-50 mins. and then at 900-1000 degrees C for 1-8 hrs. to complete the microcrystallisation. There is no need to introduce any special nucleating agents. The material is suitable for casting various articles opt. under pressure, it can also be used as a binder in

composites.

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FILE COVERS 1967 - 27 May 1997 (970527/ED) VOL 126 ISS 22

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d l98 1-38 cbib abs hitind

L98 ANSWER 1 OF 38 HCA
126:160358 The effect of counterface on the tribiological performance of a high temperature solid **lubricant composite** from 25 to 650.degree.. DellaCorte, Chrisopher (NASA Lewis Res. Center, Cleveland, OH, USA). Surf. Coat. Technol., 86-87(1-3), 486-492 (English) 1996. CODEN: SCTEEJ. ISSN: 0257-8972.
AB The effect of counterface selection on the tribol. performance of an Ag/**BaF2-CaF2** contg. **composite** coating was studied. Al2O3 and Inconel X-750 Ni superalloy pins were slid against PS300 (a Ni-20Cr bonded Cr2O3 coating with Ag and **BaF2/CaF2 lubricant** additives) in a pin-on-disk tribometer. Compared to the ceramic counterface, the alloy counterface generally exhibited lower friction and wear at 25.degree. but higher friction and wear at 650.degree.. Friction coeffs., for example, for the Al2O3/PS300 combination at 25.degree. was 0.64 compared to 0.23 for the Inconel/PS300 sliding couple. At 650.degree. the ranking was reversed. The Al2O3/PS300 combination gave a friction coeff. of 0.19, while the coeff. for the metal counterface increased slightly to .apprx.0.3. The performance of each counterface/PS300 combination is affected by the ability of the solid **lubricant** additives to form an adequate transfer film. The effects of surface wetting and tribol. compatibility are discussed in relation to the obsd. tribol. results.
CC 56-4 (Nonferrous Metals and Alloys)
Section cross-reference(s): 51
ST alumina counterface **lubricant** cermet friction; superalloy counterface **lubricant** cermet friction
IT Friction
Solid **lubricants**
(effect of alumina or superalloy counterface on tribiol. performance of high-temp. solid **lubricant composite**)
IT **1308-38-9**, **Chromium oxide**, properties
7440-22-4, Silver, properties **7787-32-8**, **Barium fluoride (BaF2) 7789-75-5**
, **Calcium fluoride (CaF2)**, properties

11106-97-1
(**composite**; effect of alumina or superalloy counterface on tribiol. performance of high-temp. solid **lubricant composite** contg.)
IT 1344-28-1, Alumina, properties **11145-80-5**, Inconel x-750
(effect of alumina or superalloy counterface on tribiol. performance of high-temp. solid **lubricant composite**)

L98 ANSWER 2 OF 38 HCA COPYRIGHT 1997 ACS
125:147731 Low friction coatings for **lubricant** free use in rail points. Steffens, H.-D.; Haumann, D.; Gramlich, M.; Wilden, J.; Wewel, M.; Hoehle, M.; Nestler, M. C. (University Dortmund, Dortmund, Germany). Adv. Therm. Spray Sci. Technol., Proc. Natl. Therm. Spray Conf., 8th, 677-681. Editor(s): Berndt, Chris C.; Sampath, Sanjay. ASM International: Materials Park, Ohio. (English) 1995. CODEN: 63DCAG.
AB The development of different concepts for low friction coatings e.g. self **lubricating** coatings, **lubricants** sealed coatings, or materials consisting of low friction matrixes reinforced with wear resistant particles, has increased. Various exptl. investigations concerning the wear and corrosion resistance of different coatings give a good insight into the different concepts. 22 Coating materials sprayed by using atm. plasma (APS) or high velocity oxy-fuel (HVOF) techniques were compared. A special testing facility was designed to investigate the wear resistance of the coatings to dry friction as well as to water **lubrication** and sand on the treated surface. The properties of the best coatings can be transferred into practice.
CC 55-6 (Ferrous Metals and Alloys)
Section cross-reference(s): 57
ST coating steel railway switch **lubrication**
IT Friction
(low friction coatings for **lubricant**-free use in railway switch points)
IT Coating process
(flame-spraying, prepn. of low friction coatings for **lubricant**-free use in railway switch points)
IT 1344-28-1, Alumina, processes 10043-11-5, Boron nitride, processes 13463-67-7, Titania, processes
(coatings contg.; low friction coatings for **lubricant** -free use in railway switch points)
IT **1308-38-9**, Chromia, processes 1317-33-5, Molybdenum disulfide, processes **7789-75-5**, **Calcium difluoride**, processes 11101-78-3 12637-47-7 **12686-28-1** 12739-21-8 **12759-28-3** 39426-01-2 **62531-60-6** **82824-75-7** **180209-58-9**
(coatings; low friction coatings for **lubricant**-free use in railway switch points)
IT 37268-90-9, AISI 1045, processes
(low friction coatings for **lubricant**-free use in

railway switch points)

L98 ANSWER 3 OF 38 HCA COPYRIGHT 1997 ACS
124:359188 Method of depositing metal oxides. Akhtar, Masud (USA). U.S. US 5487918 A 960130, 5 pp. Cont.-in-part of U.S. 5,089,248. (English). CODEN: USXXAM. APPLICATION: US 92-837216 920218. PRIORITY: US 90-523326 900514.
AB Metal oxide fine powders and thin films prepd. by exchange reactions between organosemiconductor oxides (such as disiloxanes) and **metal coordination** compds., **metallic** halides, or organometallic compds. in inert environments and anhyd. solvents.
IC ICM C23C016-40
ICS B05D003-02
NCL 427255300
CC 78-2 (Inorganic Chemicals and Reactions)
IT 62-53-3D, Benzenamine, transition metal complexes 100-71-0D, 2-Ethylpyridine, transition metal complexes 100-99-2, Triisobutylaluminum, reactions 107-46-0 108-89-4D, transition metal complexes 109-06-8D, 2-Methylpyridine, transition metal complexes 110-86-1D, Pyridine, transition metal complexes 123-54-6D, Acetylacetone, ruthenium complex 506-82-1, Dimethylcadmium 544-97-8, Dimethylzinc 593-74-8, Dimethylmercury 807-28-3, 1,3-Dimethyl-1,1,3,3-tetraphenyldisiloxane 994-49-0, Hexaethyldisiloxane 1723-94-0D, transition metal complexes 1829-40-9, Hexaphenyldisiloxane 3978-81-2D, 4-tert-Butylpyridine, transition metal complexes 7440-18-8D, Ruthenium, acetylacetonato complex 7446-70-0, Aluminum trichloride, reactions 7646-78-8, Tin tetrachloride, reactions 7646-85-7, Zinc chloride, reactions **7681-49-4**, **Sodium fluoride**, reactions 7783-68-8, Niobium pentafluoride 7783-71-3, Tantalum pentafluoride 7783-82-6, Tungsten hexafluoride 7783-90-6, Silver monochloride, reactions 7783-95-1, Silver difluoride 7786-30-3, Magnesium chloride, reactions 7787-47-5, Beryllium chloride 7787-61-3, Bismuth trifluoride 7788-97-8, Chromium trifluoride 7789-19-7, Copper difluoride **7789-23-3**, **Potassium fluoride 7789-24-4**, **Lithium fluoride**, reactions 10025-82-8, Indium trichloride 10026-11-6, Zirconium tetrachloride 10026-17-2, Cobalt difluoride 10028-18-9, Nickel difluoride 10043-52-4, Calcium chloride, reactions 13395-16-9, Bis(acetylacetonato)copper 13597-73-4, Disiloxane 13709-31-4, Vanadium fluoride oxide (VF3O) 13709-38-1, Lanthanum trifluoride 13709-47-2, Scandium trifluoride 13709-49-4, Yttrium trifluoride 13777-22-5, Hafnium tetrabromide 13782-84-8, Platinum pentafluoride 13819-84-6, Molybdenum pentafluoride 13869-82-4, Dichlorobis(2-picoline)zinc 14243-22-2, Dicarbonylchloro(4-methylaniline)iridium 14521-17-6, Rhodium pentafluoride 14521-18-7, Ruthenium pentafluoride 14551-81-6, Tribromotris(pyridine)molybdenum 14568-19-5, Iridium pentafluoride 21563-00-8, Gold chloride (Au2Cl6) 28833-03-6 30937-52-1, Rhenium pentafluoride 31576-40-6, Osmium pentafluoride

56240-61-0, 1,1,3,3-Tetrachlorodisiloxane 64735-34-8, Tungsten fluoride oxide (WF3O) 106563-15-9 146956-38-9, Titanium bromide 176788-92-4, Calcium silver chloride (CaAg2Cl4)
(for prepn. of oxides using disiloxanes)

IT 1303-58-8P, Gold oxide (Au2O3) 1304-56-9P, Beryllium oxide 1305-78-8P, Calcium oxide, preparation 1306-19-0P, Cadmium oxide, preparation 1307-96-6P, Cobalt oxide (CoO), preparation **1308-38-9P, Chromium oxide**, preparation 1309-48-4P, Magnesium oxide, preparation 1312-81-8P, Lanthanum sesquioxide 1313-27-5P, Molybdenum trioxide, preparation 1313-59-3P, Sodium oxide, preparation 1313-99-1P, Nickel monoxide, preparation 1314-13-2P, Zinc oxide, preparation 1314-23-4P, Zirconium dioxide, preparation 1314-35-8P, Tungsten trioxide, preparation 1314-36-9P, Yttrium sesquioxide, preparation 1314-61-0P, Tantalum pentoxide 1314-62-1P, Vanadium pentoxide, preparation 1317-38-0P, Cupric oxide, preparation 1344-28-1P, Alumina, preparation 11113-84-1P, Ruthenium oxide 12035-82-4P, Platinum monoxide 12055-23-1P, Hafnium dioxide 12057-24-8P, Lithium oxide, preparation 12060-08-1P, Scandium sesquioxide 12136-45-7P, Potassium oxide, preparation 12164-77-1P, Neodymium pentoxide 12624-27-0P, Rhenium oxide 12645-46-4P, Iridium oxide 12680-36-3P, Rhodium oxide 13463-67-7P, Titania, preparation 20667-12-3P, Silver oxide 21908-53-2P, Mercury oxide 50926-11-9P, Indium tin oxide 61970-39-6P, Osmium oxide
(prepn. using disiloxanes)

L98 ANSWER 4 OF 38 HCA COPYRIGHT 1997 ACS

124:323518 Development of solid **lubricants** for high temperature rolling ceramic bearing. II. Ternary system solid **lubricants** composed of **CaF2** + **BaF2**, and Cr2O3. Toyota, Hiroshi; Yoshioka, Takeo; Umeda, Kazunori; Niizeki, Shin; Kaneko, Toshiaki; Itakura, Takashi (Res. Dev. Div., Koyo Seiko Co., Ltd., Kashiwara, 582, Japan). Toraiborojisuto, 41(2), 146-53 (Japanese) 1996. CODEN: TORAEO. ISSN: 0915-1168.

AB The solid **lubricants** and binder of Ni-based alloy of Ni-23.2 Co-17.0 Cr-12.5 Al-0.5 Y were formed through plasma injection under low pressure upon Ni-Cr alloy (Inconel 713). Ratio of **CaF2**+**BaF2**:Cr2O3 were between 40/60 and 60/40, and ratio of the solid **lubricants**: binder were between 10:90 and 40:60. Contact part of the retainer were examd. with SEM and EPMA after the test of 1000 rpm (2.2 m/s) at 800 .degree.C under load of 4.9 N between retainer and roller and 200 N between roller and ring. The friction characteristics of the solid **lubricants** between RT and 900 .degree.C were examd. with the high temp. reciprocating friction and abrasion tester, and the layers of **lubricants** were examd. using high temp. X-ray diffraction. The formation of BaCrO4 were obsd. above 700 .degree.C.

CC 57-2 (Ceramics)
Section cross-reference(s): 56

ST inorg solid **lubricant** rolling ceramic bearing; barium

calcium fluoride chromia solid **lubricant**

IT Bearings
(roller, ceramic; development of **CaF2-BaF2**-Cr2O3 solid **lubricants** for high temp. rolling ceramic bearings)

IT **Lubricants**
(solid, development of **CaF2-BaF2**-Cr2O3 solid **lubricants** for high temp. rolling ceramic bearings)

IT **118889-98-8**
(binder, solid **lubricant**; development of **CaF2-BaF2**-Cr2O3 solid **lubricants** for high temp. rolling ceramic bearings)

IT 10294-40-3, Barium chromate (BaCrO4)
(formation of, from solid **lubricant** in friction; development of **CaF2-BaF2**-Cr2O3 solid **lubricants** for high temp. rolling ceramic bearings)

IT **1308-38-9**, **Chromium oxide** (Cr2O3), uses
7787-32-8, **Barium fluoride** (**BaF2**) **7789-75-5**, **Calcium fluoride** (**CaF2**), uses
(solid **lubricants**; development of **CaF2-BaF2**-Cr2O3 solid **lubricants** for high temp. rolling ceramic bearings)

L98 ANSWER 5 OF 38 HCA COPYRIGHT 1997 ACS

124:131039 **Composite** film of glass fabric, fluorine-containing resin, its manufacture, and light interference film. Komatsu, Yasuo; Okumura, Haruichiro; Negishi, Takao (Toray Industries, Japan). Jpn. Kokai Tokkyo Koho JP 07299885 A2 951114 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 94-94961 940509.

AB The title **composite** film, suitable for use in a house structure, wall and roof, is composed of a glass fabric and a F-contg. resin, and has a light interference film formed on .gtoreq.1 side. The F- contg. resin comprises .gtoreq.1 copolymer selected from tetrafluoroethylene-hexafluoropropylene, tetrafluoroethylene-ethylene, and tetrafluoroethylene-perfluoroalkyl vinyl ether copolymers. The interference film may be a transparent metal film, prepd. by vapor deposition, composed of .gtoreq.1 compd. selected from SiO, SiO2, In2O3, TiO2, In2O3/SnO2, **MgF2**, Al2O3, and Cr2O3. The light interference film may be a laminate of the transparent metal film and a reflective metal film with av. reflectance .gtoreq.60% in visible, composed of a metal selected from Al, Cu, Ag, Mg, Ti, Ni, Co, Au, Cr, Pe (sic), and Rh. The light interference film may be a laminate of the reflective metal film, the transparent metal film, and a translucent film with av. reflectance in visible radiation area <60% composed of .gtoreq.1 metal selected from Al, Cu, Ag, Mg, Ti, Ni, Co, In, Cr, Si, Au, and Au/Pt.

IC ICM B32B017-10
ICS B32B007-02; B32B027-30; C23C014-06; C23C014-08; C23C014-14

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related

Properties)
Section cross-reference(s): 38
IT Building materials
Films
Roofing
(complex film of light interference film and glass fabric-F-contg. resin **composite** for housing)
IT Fluoropolymers
(complex film of light interference film and glass fabric-F-contg. resin **composite** for housing)
IT Glass fibers, uses
(complex film of light interference film and glass fabric-F-contg. resin **composite** for housing)
IT **1308-38-9**, **Chromium oxide** (Cr_2O_3), uses
1312-43-2, Indium oxide (In_2O_3) 1344-28-1, Alumina, uses
7429-90-5, Aluminum, uses 7439-95-4, Magnesium, uses 7440-02-0, Nickel, uses **7440-06-4**, Platinum, uses **7440-16-6**, Rhodium, uses 7440-21-3, Silicon, uses **7440-22-4**, Silver, uses 7440-32-6, Titanium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses **7440-50-8**, Copper, uses **7440-57-5**, Gold, uses 7440-74-6, Indium, uses 7631-86-9, Silica, uses **7783-40-6**, **Magnesium fluoride** (MgF_2) 13463-67-7, Titania, uses
18282-10-5, Tin oxide (SnO_2)
(complex film of light interference film and glass fabric-F-contg. resin **composite** for housing)
IT 116-14-3D, Tetrafluoroethylene, copolymer with perfluoroalkyl vinyl ether 25038-71-5, Ethylene-tetrafluoroethylene copolymer 25067-11-2, Hexafluoropropylene-tetrafluoroethylene copolymer
(**composite** film of light interference film and glass fabric-F-contg. resin **composite** for housing)
IT 113443-18-8, Silicon oxide (SiO)
(**composite** film of light interference film and glass fabric-F-contg. resin **composite** for housing)

L98 ANSWER 6 OF 38 HCA COPYRIGHT 1997 ACS
123:294572 Ceramic-based sliding members coated with solid **lubricant**-contg. polymers. Funatani, Seiji; Izumida, Hiroshi; Murabe, Kaoru; Nishioka, Takao; Yamakawa, Akira; Matsunuma, Kenji (Sumitomo Electric Industries, Japan). Jpn. Kokai Tokkyo Koho JP 07179873 A2 950718 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 93-346336 931222.
AB The members, used for sliding with other members in **lubricating** agents, comprise **composite** polymer coating contg. dispersed metal compd. powder as solid **lubricant** on (a) ceramics whose surfaces are not mech. processed, and (b) the sliding face of the ceramics. The members are suitable for use in automobile engines, compressors, etc.
IC ICM C10M111-04
ICS C04B041-83; F01L001-18; F16H053-06
ICI C10M111-04, C10M103-00, C10M107-00; C10N010-00, C10N020-06,

C10N040-02, C10N050-08
CC 57-2 (Ceramics)
ST ceramic sliding member **composite** coating
IT Ceramic materials and wares
(ceramic-base sliding members coated with polymer **composites** contg. solid **lubricating** particles)
IT Polythiophenylenes
Synthetic fibers
Polyimides, uses
Polymers, uses
(ceramic-base sliding members coated with polymer **composites** contg. solid **lubricating** particles)
IT Crystal whiskers
(solid **lubricant**; ceramic-base sliding members coated with polymer **composites** contg. solid **lubricating** particles)
IT Machinery
(parts, sliding, abrasion-resistant, ceramic-base sliding members coated with polymer **composites** contg. solid **lubricating** particles)
IT Polyimides, uses
(polyamide-, ceramic-base sliding members coated with polymer **composites** contg. solid **lubricating** particles)
IT Polyamides, uses
(polyimide-, ceramic-base sliding members coated with polymer **composites** contg. solid **lubricating** particles)
IT 9002-84-0, PTFE 25053-15-0, Diallyl phthalate homopolymer
(ceramic-base sliding members coated with polymer **composites** contg. solid **lubricating** particles)
IT 409-21-2, Silicon carbide, uses 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 12033-89-5, Silicon nitride, uses 24304-00-5, Aluminum nitride 51184-13-5, Sialon
(ceramic; ceramic-based sliding members coated with solid **lubricant**-contg. polymers)
IT 1303-86-2, Boron oxide (B2O3), uses **1308-38-9**, **Chromium oxide** (Cr2O3), uses 1313-27-5, Molybdenum oxide (MoO3), uses **7789-75-5**, **Calcium difluoride**, uses 10043-11-5, Boron nitride, uses
(solid **lubricant**; ceramic-base sliding members coated with polymer **composites** contg. solid **lubricating** particles)
IT 1317-33-5, Molybdenum disulfide (MoS2), uses
(solid **lubricant**; ceramic-based sliding members coated with solid **lubricant**-contg. polymers)

L98 ANSWER 7 OF 38 HCA COPYRIGHT 1997 ACS
123:291119 Composite mica powders, their manufacture, and UV ray absorbents and matting agents containing the same. Kosugi, Tetsushi; Ando, Akitsugu (Topy Ind, Japan). Jpn. Kokai Tokkyo Koho JP 07206424 A2 950808 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 93-351204 931230.

AB The composite mica powders comprise synthetic fluoromica particles having fusion-**adhered metal** oxide fine particles on surfaces. The metal oxide may be TiO2, CeO2, ZnO, Fe oxide, SiO2, Al2O3, ZrO2 and/or **Cr oxide**. The manuf. comprises mixing synthetic fluoromica with metal oxides and inorg. fluorides and heating at 800-1300.degree.. The inorg. fluorides may be **KF**, K silicofluorides, **NaF**, and/or Na silicofluoride. The UV ray absorbents comprise synthetic fluoromica particles having fusion-**adhered metal** oxide fine particles on surfaces. The matting agents comprise synthetic fluoromica particles having fusion-adhered SiO2 fine particles on surfaces. The binding strength of the synthetic fluoromica particles and the metal oxide is greatly improved. Is the products are esp. suitable for paints, plastics, inks, cosmetics, etc.

IC ICM C01B033-26
ICS B01J002-00; C09K003-00

CC 49-4 (Industrial Inorganic Chemicals)
Section cross-reference(s): 38, 42, 62

IT Luster
(matting agents; manuf. of composite mica particles having **adhered metal** oxide fine particles for UV absorbents and matting agents)

IT Mica-group minerals, processes
(synthetic, fluorine-rich; manuf. of composite mica particles having **adhered metal** oxide fine particles for UV absorbents and matting agents)

IT Light stabilizers
(UV, manuf. of composite mica particles having **adhered metal** oxide fine particles for UV absorbents and matting agents)

IT **7681-49-4**, **Sodium fluoride**, processes
7789-23-3, **Potassium fluoride**
16871-90-2, Potassium silicofluoride 16893-85-9
(manuf. of composite mica particles having **adhered metal** oxide fine particles for UV absorbents and matting agents)

IT 1306-38-3, Ceria, processes 1314-13-2, Zinc oxide, processes
1314-23-4, Zirconia, processes 1332-37-2, Iron oxide, processes
1344-28-1, Alumina, processes 7631-86-9, Silica, processes
11118-57-3, **Chromium oxide** 13463-67-7, Titania, processes
(manuf. of composite mica particles having **adhered metal** oxide fine particles for UV absorbents and matting agents)

L98 ANSWER 8 OF 38 HCA COPYRIGHT 1997 ACS
123:15958 Ceramic sliding parts having decreased friction coefficient. Funatani, Seiji; Izumida, Hiroshi; Murabe, Kaoru; Nishioka, Takao; Yamakawa, Akira; Matsunuma, Kenji (Sumitomo Electric Industries, Japan). Jpn. Kokai Tokkyo Koho JP 07098052 A2 950411 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 93-265577 930929.

AB The sliding parts have a sliding surface with 10-point av. roughness .ltoreq.3 .mu.m, and a **composite** film as the solid **lubrication** material provided at least at the sliding surface. The **composite** film has a polymer matrix with dispersed metal compd. particles. Preferably, the ceramic material contains .gtoreq.60 vol% of ZrO2, SiC, Si3N4, Sialon, Al2O3, and//or AlN.

IC ICM F16H053-06
ICS C04B041-91

CC 57-2 (Ceramics)
Section cross-reference(s): 38

IT Polythiophenylenes
Polyimides, properties
(sliding surface with **composite** film contg.; ceramic sliding parts having decreased friction coeff.)

IT Polyimides, properties
(polyamide-, sliding surface with **composite** film contg.; ceramic sliding parts having decreased friction coeff.)

IT Polyamides, properties
(polyimide-, sliding surface with **composite** film contg.; ceramic sliding parts having decreased friction coeff.)

IT 1303-86-2, Boron oxide, uses **1308-38-9**, Chromia, uses 1313-27-5, Molybdenum oxide (MoO3), uses 1317-33-5, Molybdenum sulfide (MoS2), uses **7789-75-5**, **Calcium fluoride**, uses 10043-11-5, Boron nitride, uses
(particles, sliding surface with polymer film dispersed with; ceramic sliding parts having decreased friction coeff.)

IT 131-17-9, Diallylphthalate 9002-84-0
(sliding surface with **composite** film contg.; ceramic sliding parts having decreased friction coeff.)

L98 ANSWER 9 OF 38 HCA COPYRIGHT 1997 ACS

122:110453 Solid **lubricants** and formation of solid **lubricant** coatings. Yoshioka, Takeo; Mizutani, Hachiro; Kotorii, Hirofumi; Toyoda, Yasushi; Niizeki, Shin; Hashimoto, Takanobu; Kashiwamura, Hiroshi; Sugi, Hiromi; Takamori, Makoto; Hirai, Eiji (Kogyo Gijutsuin, Japan; Nippon Seiko Kk; Kawasaki Heavy Ind Ltd; Koyo Seiko Co; Ntn Toyo Bearing Co Ltd; Nippon Packaging Kk; Fujikoshi Kk). Jpn. Kokai Tokkyo Koho JP 06306380 A2 941101 Heisei, 17 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 93-84204 930318.

AB The **lubricants** are mixts. of **CaF2**, **BaF2**, and Cr2O3. **Lubricant** coatings are formed by plasma thermal spraying of mixts. of the **lubricants** with heat-resistant alloyed steel powder (binder) onto heat-resisting materials. Preferably, the amt. of the binder powder is 20-80 vol.%. The **lubricants** and the coatings are useful for rotating parts and sliding parts of machines used at high temps.

IC ICM C10M103-00
ICS C23C004-04

ICI C10M103-00, C10M103-06; C10N010-04, C10N010-12, C10N020-00,

C10N020-06, C10N030-06, C10N040-02, C10N040-06, C10N050-08, C10N070-00
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 55
ST calcium **barium fluoride** chromia **lubricant**; coating **lubricant** plasma thermal spraying; steel alloyed binder **lubricant** spraying
IT **Lubricants**
(solid, **CaF2-BaF2**-Cr2O3 solid **lubricants** and formation of their coatings by plasma thermal spraying as mixts. with alloyed steel powder binders)
IT **1308-38-9**, Chromia, uses **7787-32-8**, **Barium difluoride 7789-75-5**, **Calcium difluoride**, uses
(**CaF2-BaF2**-Cr2O3 solid **lubricants** and formation of their coatings by plasma thermal spraying as mixts. with alloyed steel powder binders)
IT **160888-79-9**
(binder; **CaF2-BaF2**-Cr2O3 solid **lubricants** and formation of their coatings by plasma thermal spraying as mixts. with alloyed steel powder binders)
IT 12597-69-2, Steel, uses
(heat-resistant alloyed, binder; **CaF2-BaF2** -Cr2O3 solid **lubricants** and formation of their coatings by plasma thermal spraying as mixts. with alloyed steel powder binders)
IT **12606-09-6**, Inconel 713C
(**lubricant** coating on; **CaF2-BaF2** -Cr2O3 solid **lubricants** and formation of their coatings by plasma thermal spraying as mixts. with alloyed steel powder binders)

L98 ANSWER 10 OF 38 HCA COPYRIGHT 1997 ACS
119:230821 Characterization of **composite** tribological coatings: composition, microstructure and mechanical properties. Liu, G. H.; Gras, R.; Blouet, J. (Inst. Super. Mater. Const. Mec., St-Owen, 93407, Fr.). Surf. Coat. Technol., 58(3), 199-203 (English) 1993. CODEN: SCTEEJ. ISSN: 0257-8972.
AB The present study aims to characterize two kinds of plasma **composite** coatings (Cr2O3.**CaF2** and Cr2O3. **BaF2**) with very good tribol. properties. Chem. and quant. image analyses show that solid **lubricant** content (**CaF2** and **BaF2**) in the coatings is less than but proportional to the nominal solid **lubricant** content in mixed powders for spraying. The microstructure of the **composite** coatings is characteristic of a homogeneous distribution of solid **lubricant** powders within the Cr2O3 matrix: on a sliding surface, the coating's microstructure consists of the spheroidal solid **lubricant** particles dispersed in a continuous Cr2O3 matrix; on cross-section the distinct wavy multilayers (Cr2O3 and solid **lubricant**) have been

compacted to build the **composite** coating. During sliding, the matrix has flowed and the **lubricant** particles have been removed partially, smashed to very fine fragments, and incorporated with the matrix of which one thin soft film has been made. It is the thin soft film that offers the very good tribol. properties of the coatings. However, the solid **lubricant** also results in degrdn. of the mech. properties. Consequently there is one optimal solid **lubricant** content (about 20 vol. %) at which the coating has the best tribol. and mech. properties.

CC 55-6 (Ferrous Metals and Alloys)
Section cross-reference(s): 57

ST tribol **composite** chromia coating steel; chromium fluoride **lubricant** chromia coating; **barium fluoride lubricant** chromia coating; fluoride **lubricant** chromia coating tribol

IT 39370-52-0, 35CD4, uses
(**composite** chromia-solid fluoride **lubricant** coating on, tribol. properties of)

IT **7787-32-8**, **Barium difluoride**
10049-10-2, Chromium difluoride
(**composite** coating with chromia, on steel, tribol. properties of)

IT **1308-38-9**, Chromium sesquioxide, uses
(**composite** coating with solid fluoride **lubricant**, on steel, tribol. properties of)

L98 ANSWER 11 OF 38 HCA COPYRIGHT 1997 ACS

118:259617 Improvement in tribological properties of **chromium oxide** coating at high temperature by solid **lubricants**. Liu, G. H.; Robbevalloire, F.; Gras, R.; Blouet, J. (Inst. Super. Mater. Constr. Mec., St.-Ouen, F-93407, Fr.). Wear, 160(1), 181-9 (English) 1993. CODEN: WEARAH. ISSN: 0043-1648.

AB The aim of the investigations was to improve the tribol. properties of Cr2O3 coating for applications in heat engines at high temps. The solid **lubricants CaF2** and **BaF2** in **composite** coatings can decrease and stabilize the friction coeff., decrease the wear rate, prevent surface damage, and improve the load capacity of Cr2O3 coatings at 425.degree. in air. In tribotests at 0.2-1.0 MPa, it appears that the optimal solid **lubricant** content is 14-21% for Cr2O3-**CaF2** coatings and 20-31% for Cr2O3-**BaF2** coatings. Auger electron spectroscopy and energy-dispersive spectroscopy analyses show that the friction coeff. is correlated with the amt. of solid **lubricant** in contact areas: the friction coeff. decreases with solid **lubricant** content if it is <4%, then stabilizes at 0.20-0.25.

CC 57-2 (Ceramics)
Section cross-reference(s): 51

ST chromia coating tribol solid **lubricant**; **calcium fluoride** chromia coating **composite** tribol;

barium fluoride chromia coating **composite** tribol

IT **Lubricants**
(solid, **calcium fluoride** and **barium fluoride**, in chromia coatings, tribol. in relation to)

IT **1308-38-9**, Chromia, uses
(coatings, tribol. of, solid **lubricant** additive effect on)

IT **7787-32-8**, **Barium fluoride**
7789-75-5, **Calcium fluoride**, uses
(solid **lubricant**, in chromia coatings, tribol. in relation to)

L98 ANSWER 12 OF 38 HCA COPYRIGHT 1997 ACS
118:62802 Solid **lubricants** for an adiabatic engine. Kamo, Roy; Bryzik, Walter (Adiabatics, Inc., Columbus, IN, USA). Lubr. Eng., 48(10), 809-15 (English) 1992. CODEN: LUENAG. ISSN: 0024-7154.

AB A high-temp. [diesel] piston concept was presented, in which a conventional liq. **lubricant** in combination with a solid **lubricant** can provide the total **lubrication** requirement at high temps. The concept uses a 2-piece piston which consists of (1) a low thermal-cond. piston crown which is **lubricated** by a solid **lubricant**-contg. piston ring and cylinder liner, and (2) a lower skirt section which is hydrodynamically **lubricated** by conventional liq. **lubricant** (esp. polyol ester oils) and conventional piston rings. This 2-piece hybrid piston was analyzed for functional operation by using various solid liner materials. The combined effects of piston ring mass side angle groove relationship, location, face profile, tension, orifice area, and ring cross section on oil transport, blowby, and ring force between ring face and cylinder wall over the cycle. Solid **lubricant** cylinder and piston ring combinations investigated were NASA PS200 against Stellite 6B, Cr2O3 against Cr2O3, and Cr2O3 against Cu + **LiF** coating. The hybrid design offers the potential of operation at >427.degree. top ring reversal temp. without significant advances above conventional synthetic liq. **lubricants**. The engine operates with low fuel consumption and low emissions.

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 55, 56, 57

ST adiabatic uncooled diesel engine construction; **lubrication** hybrid diesel piston ring; **lubricating** oil ester diesel piston; solid **lubricant** hybrid diesel **lubrication**

IT Piston rings
Pistons
(diesel, hybrid, **lubrication** of)

IT **Lubrication**
(of hybrid adiabatic diesel engine, with **lubricating composite** metals and polyol esters)

IT Alcohols, esters
(polyhydric, esters, **lubricating** oils, combined with solid **lubricant**-contg. **composites** and alloys, for hybrid high-temp. adiabatic diesel engine)
IT **Lubricants**
(solid, **composites** and alloys contg., combined with polyol ester oils, for hybrid diesel pistons and piston rings)
IT **Lubricating** oils
(synthetic, polyol ester-based, combined with solid **lubricants**, for hybrid diesel pistons and piston rings)
IT **1308-38-9**, **Chromium oxide** (Cr_2O_3), uses
1313-27-5, Molybdenum trioxide, uses 1317-33-5, Molybdenum disulfide, uses 1317-36-8, Lead oxide (PbO), uses
7440-50-8, **Copper**, uses **7787-32-8**,
Barium fluoride 7789-24-4,
Lithium fluoride, uses **7789-75-5**,
Calcium fluoride, uses **12671-96-4**,
Stellite 6B **51141-96-9** 145538-48-3, NASA PS 200
(**lubricant** combinations contg., for hybrid high-temp. adiabatic diesel engine)
IT 11097-15-7, Cast iron, uses 12597-68-1, Stainless steel, uses 145538-49-4, NASA PS 212
(**lubrication** and wear testing of, **lubrication** of hybrid high-temp. adiabatic diesel engine in relation to)

L98 ANSWER 13 OF 38 HCA COPYRIGHT 1997 ACS
117:154341 Hot-rolling lubricants for nonferrous metals. Higo, Juichi; Tatemichi, Hiroto; Shinoda, Kenichi (Nisshin Steel Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 04198298 A2 920717 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 90-322123 901126.
AB The lubricants comprise 1-30% of inorg. microparticles of MoS_2, BN, PbO, PbS, **CaF_2**, Al_2O_3, TiO_2, graphite, Fe oxides, Ni oxides, **Cr oxides**, and/or inorg. silicate salts dispersed in aq. viscous soln. The lubricants prevent scratch due to **adhesion** of **metals** to hot-rollers.
IC ICM C10M173-00
ICS B21B045-02
ICI C10M173-00, C10M103-00, C10M103-06, C10M103-02; C10N010-04, C10N010-06, C10N010-08, C10N010-12, C10N010-16, C10N020-02, C10N020-06, C10N030-06, C10N040-24
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 56
IT 1309-37-1, Iron oxide, uses 1313-99-1, Nickel oxide, uses 1314-87-0, Lead sulfide 1317-33-5, Molybdenum sulfide, uses 1317-36-8, Lead oxide, uses 1344-28-1, Alumina, uses 7782-42-5, Graphite, uses **7789-75-5**, **Calcium fluoride**, uses 10043-11-5, Boron nitride, uses 11118-57-3, **Chromium oxide** 13463-67-7, Titania, uses
(lubricants, aq. viscous solns. contg., for hot rolling of nonferrous metals)

L98 ANSWER 14 OF 38 HCA COPYRIGHT 1997 ACS
116:156032 Effect of ceria on sintered corrosion-resistant self-**lubricating** coatings. Zhang, Jun; Zhao, Jiazheng; E, Jisheng; Dang, Hongxin (Lanzhou Inst. Chem. Phys., Acad. Sin., Lanzhou, 730000, Peop. Rep. China). Zhongguo Xitu Xuebao, 9(2), 151-4 (Chinese) 1991. CODEN: ZXXUE5. ISSN: 1000-4343.
AB The effect of CeO2 on sintered corrosion-resistant self-**lubricating** LIC-23 coatings on stainless steel 1Cr18Ni9Ti was studied by microhardness measurement, SEM, and thermal anal. CeO2 improved the microstructure and properties of coatings. The coatings have excellent self-**lubricating** properties in HCl solns.
CC 55-6 (Ferrous Metals and Alloys)
Section cross-reference(s): 57
ST coating **lubricant** stainless steel ceria
IT **Lubricants**
(on stainless steel, ceria effect on properties of)
IT 1304-28-5, Barium monoxide, uses 1305-78-8, Calcia, uses **1308-38-9**, Chromia, uses 7631-86-9, Silica, uses **7787-32-8**, **Barium difluoride** **7789-75-5**, **Calcium difluoride**, uses 12401-70-6, Potassium monoxide
(coatings contg., on stainless steel, ceria effect on self-**lubricating**)
IT **54611-20-0**, 1Cr18Ni9Ti
(coatings on, ceria effect on self-**lubricating**)
IT 1306-38-3, Ceria, uses
(in self-**lubricating** coatings on stainless steel, microstructure and properties in relation to)
IT 12597-68-1
(**lubricants**, on stainless steel, ceria effect on properties of)

L98 ANSWER 15 OF 38 HCA COPYRIGHT 1997 ACS
115:140837 Development of a glass matrix inorganic non-metal self-**lubricating composite** coating and the study of its tribological characteristics. Zhang, Jun; Zhao, Jiazhen; E, Jisheng; Dang, Hongxin (Lanzhou Inst. Chem. Phys., Chin. Acad. Sci., Lanzhou, Peop. Rep. China). Guti Runhua, 10(4), 241-7 (Chinese) 1990. CODEN: GURUEH. ISSN: 1000-4084.
AB A self-**lubricating** glass-matrix **composite** coating was prepd. by the melting method. The glass matrix used for the skeleton of this coating as the compn. BaO 16.6, SiO2 45.8, Cr2O3 9.1, K2O 10.3, CaO 6.3, **CaF2**/**BaF2** 8.8, and CeO2 3.0%. To improve the binding strength between the coating and substrate, a thick intermediate layer was added of compn. BaO 28.8, SiO2 27.9, Cr2O3 29.1, CaO 2.58, ZnO 3.60, MoO3 1.36, bentonite 2.91, and B2O3 3.74%. Friction testing showed that the **antifriction** ability was increased by adding a small amt. of fluoride into the coating. The fluoride reacted with Si to form

volatile matter at high temp. Bubbles formed in the coating by cooling some of the volatile matter. The bubble distribution could be changed by adding CeO2. It is suggested that the bubbles can break off or decrease the crack extension. The extension degree and pathway of cracks depend on the bubble size and distribution, so under a given stress, the sizes of fracture particles are also different. The bubble distribution is optimum when the CeO2 content is 3.0%. Under this condition, the friction-induced fracture particles may fall in the microvoids and roll, decreasing the friction coeff.; when the CeO2 content is less or more than 3.0%, because the abrasive dust size is smaller or bigger than microvoids size, the friction coeff. cannot be changed. The liq. which exists in microvoids can bear the part of load, therefore the friction coeff. further decreases. The self-**lubricating** **composite** coating with CeO2 content 3.0% possess good friction-wear characteristics in HCl and NaOH solns.

CC 57-1 (Ceramics)

ST glass matrix self **lubricating** coating; potassium silicate glass self **lubricating** coating; chromium silicate glass self **lubricating** coating; barium silicate glass self **lubricating** coating; friction glass self **lubricating** coating

IT Friction
(of glass-matrix self-**lubricating** coating)

IT Coating materials
(**antifriction**, barium chromium potassium silicate glass-matrix, properties of)

IT Glass, oxide
(barium chromium potassium silicate, coatings, self-**lubricating**, prepn. and properties of)

IT **Antifriction** materials
(coatings, barium chromium potassium silicate glass-matrix, properties of)

IT 1304-28-5, Barium oxide (BaO), uses and miscellaneous **1308-38-9**, **Chromium oxide** (Cr2O3), uses and miscellaneous 12136-45-7, Potassium oxide, uses and miscellaneous
(glass, barium chromium potassium silicate, coatings, self-**lubricating**)

IT 1306-38-3, Ceria, uses and miscellaneous 16984-48-8, Fluoride, uses and miscellaneous
(in glass coatings, barium chromium potassium silicate, self-**lubricating** properties in relation to)

L98 ANSWER 16 OF 38 HCA COPYRIGHT 1997 ACS

114:169399 Wear-resistant electrodeposited coatings with low friction. Puippe, Jean Claude (Fluehmann, Werner, A.-G., Switz.). PCT Int. Appl. WO 9002220 A1 900308, 20 pp. DESIGNATED STATES: W: JP, US; RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE. (French). CODEN: PIXXD2. APPLICATION: WO 89-CH117 890621. PRIORITY: CH 88-3158 880825.

AB The wear-resistant alloy electrodeposits having a low friction coeff. consist of Co 40-90, Ni 10-50, and P 3-20%, optionally with dispersed **lubricant** and/or wear-resistant powders (size 0.01-100 .mu.m) codeposited from the slurry bath. The typical **lubricant** powders are CF4, MoS2, graphite, Ag, PTFE, **BaF2**, **CaF2**, **BaF2**.cntdot.**CaF2** eutectic mixt., encapsulated oil, and/or hexagonal BN. The typical wear-resistant powders are oxides, carbides, nitrides, and diamond. Thus, the Co-30 Ni-10% P coating 10 .mu.m thick was electrodeposited on a brass disk at the bath pH 1.5, 60.degree., and c.d. of 12 A/dm2. The friction coeff. of the coated disk was initially 0.15, and increased to 0.3 after 1100 revolutions.

IC ICM C25D015-02

CC 56-6 (Nonferrous Metals and Alloys)

ST wear resistant electroplate alloy; cobalt nickel phosphorus electroplate; **lubricant** electroplate alloy

IT **Lubricants**
(electroplate contg. dispersed, wear-resistant coating from, with low friction coeff.)

IT **Antifriction** materials
(electroplate, alloy **composites** for, with dispersed particles)

IT 75-73-0, Carbon tetrafluoride (CF4) **1308-38-9**, **Chromium oxide** (Cr2O3), properties 1317-33-5, Molybdenum disulfide, properties **7440-22-4**, Silver, properties 7782-40-3, Diamond, properties 7782-42-5, Graphite, properties **7787-32-8**, **Barium fluoride** **7789-75-5**, **Calcium fluoride** (**CaF2**), properties 9002-84-0, Polytetrafluoroethylene 10043-11-5, Boron nitride (BN), properties 55257-49-3
(electroplate contg. dispersed, wear-resistant coating from, with low friction coeff.)

L98 ANSWER 17 OF 38 HCA COPYRIGHT 1997 ACS

112:239373 Coated electrode wire with a flux core for welding. Paton, B. E.; Voropai, N. M.; Nikiforov, B. A.; Shchegolev, G. A.; Logiiko, G. P.; Mishchanin, V. G. (Paton, E. O., Institute of Electrowelding, USSR; Magnitogorsk Mining-Metallurgical Institute; Zaporozhe Hardware Plant). PCT Int. Appl. WO 9000953 A1 900208, 34 pp. DESIGNATED STATES: W: FI, JP, US; RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE. (Russian). CODEN: PIXXD2. APPLICATION: WO 88-SU148 880726.

AB The welding wire includes a core filled with the alloying and flux components, and is coated on the inner and outer surfaces with .gtoreq.2 layers for 0.001-0.1 of the wire cross sectional area. The inner coating is 10-90% of the total coating wt. The alloying components are selected from Mg, Al, Si, Ca, Ti, V, Cr, Mn, Co, Ni, Cu, Y, Zr, Nb, Mo, Cd, Ba, La, Ta, W, and/or Ce, and the fluxes and slag-forming addns. are selected from the resp. metal carbides, oxides, chlorides, and/or fluorides. The surface coating includes elec. conducting layers. The wire structure optionally includes 1-4

cores with the assocd. coating layers. The **composite** electrodes are suitable for welding or surfacing. Thus, electrode from steel wire (contg. C 0.08, Mn 0.8, and Si 0.2%) of 1.2 mm diam. contained a core cavity (10% of the wire cross-section) filled with powd. TiO2, **CaF2**, MnO, and Mn. The coating on the inner and outer surfaces consisted of ductile Cu and Ni layers with 90% of the wt. on the outer surface.

IC ICM B23K035-10
ICS B23K035-368

CC 56-9 (Nonferrous Metals and Alloys)

IT 1305-78-8, Calcium oxide, uses and miscellaneous **1308-38-9**, **Chromium oxide** (Cr2O3), uses and miscellaneous 1309-48-4, Magnesia, uses and miscellaneous 1314-34-7, Vanadium oxide (V2O3) 1314-62-1, Vanadium oxide (V2O5), uses and miscellaneous 1344-43-0, Manganese oxide (MnO), uses and miscellaneous 7631-86-9, Silica, uses and miscellaneous 7647-14-5, Sodium chloride, uses and miscellaneous **7681-49-4**, **Sodium fluoride**, uses and miscellaneous **7783-40-6**, **Magnesium fluoride** **7787-32-8**, **Barium fluoride** **7789-75-5**, **Calcium fluoride**, uses and miscellaneous 10361-37-2, Barium chloride, uses and miscellaneous 13463-67-7, Titania, uses and miscellaneous
(welding flux contg., wire cored with, metal coating on)

IT 7429-90-5, Aluminum, uses and miscellaneous 7439-91-0, Lanthanum, uses and miscellaneous 7439-95-4, Magnesium, uses and miscellaneous 7439-96-5, Manganese, uses and miscellaneous 7439-98-7, Molybdenum, uses and miscellaneous 7440-02-0, Nickel, uses and miscellaneous 7440-03-1, Niobium, uses and miscellaneous 7440-21-3, Silicon, uses and miscellaneous 7440-25-7, Tantalum, uses and miscellaneous 7440-32-6, Titanium, uses and miscellaneous 7440-33-7, Tungsten, uses and miscellaneous 7440-39-3, Barium, uses and miscellaneous 7440-43-9, Cadmium, uses and miscellaneous 7440-45-1, Cerium, uses and miscellaneous 7440-47-3, Chromium, uses and miscellaneous 7440-48-4, Cobalt, uses and miscellaneous **7440-50-8**, Copper, uses and miscellaneous 7440-62-2, Vanadium, uses and miscellaneous 7440-65-5, Yttrium, uses and miscellaneous 7440-67-7, Zirconium, uses and miscellaneous 7440-70-2, Calcium, uses and miscellaneous
(welding wires contg., flux and core coatings in)

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111:238090 Electroless coating of magnesium or magnesium alloy parts with **composite** metal layers. Takakura, Yoshinori (Mitsubishi Electric Corp., Japan). Jpn. Kokai Tokkyo Koho JP 01068479 A2 890314 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 87-225622 870909.

AB Mg or Mg alloy parts are degreased, pickled with an aq. soln. contg. H3CrO3 salt, activated, Zn substitution treated, and subsequently electroless coated with Cu, Ni, and Au for strong adhesion. The pickling soln. contains: **CrO3** 1-3, NaNO3 0.12-0.35, and

CaF2 0.03-0.13, NH4F 0.05-0.27, or **NaF** 0.01-0.24 mol; **CrO3** 1-3, HNO3 0.18-0.80, and HF 0.25-1.0 mol; or **CrO3** 1-3 and H3PO4 0.51-1.5 mol.

IC ICM C23C018-52
ICS C23C018-46

CC 56-6 (Nonferrous Metals and Alloys)

ST magnesium alloy pickling electroless coating; chromic anhydride pickling magnesium coating; sodium nitrate pickling magnesium coating; **calcium fluoride** pickling magnesium coating; ammonium fluoride pickling magnesium coating

IT 7440-02-0, Nickel, uses and miscellaneous **7440-50-8**, Copper, uses and miscellaneous **7440-57-5**, Gold, uses and miscellaneous
(coating with, electroless, of magnesium or its alloy, pickling in)

IT **1333-82-0**, Chromic anhydride 7631-99-4, Sodium nitrate, uses and miscellaneous **7681-49-4**, **Sodium fluoride**, uses and miscellaneous **7789-75-5**, **Calcium difluoride**, uses and miscellaneous 12125-01-8, Ammonium fluoride
(pickling soln. contg., in electroless coating of magnesium or its alloy)

L98 ANSWER 19 OF 38 HCA COPYRIGHT 1997 ACS

111:200553 Coated abrasive grains, and their manufacture. Oki, Takeo; Fukuta, Yoichi; Hisada, Eiichi; Aoki, Satoshi (Noritake Co., Ltd., Japan). Eur. Pat. Appl. EP 313323 A1 890426, 20 pp. DESIGNATED STATES: R: DE, GB. (English). CODEN: EPXXDW. APPLICATION: EP 88-309796 881019. PRIORITY: JP 87-265952 871021; JP 88-57642 880311.

AB Diamond, or hard BN abrasive grains are coated with a coating comprising .gtoreq.1 substances selected from carbides, borides, and nitrides of a metal, by immersion in a bath of F-contg. molten halide contg. the elemental metal and/or its oxides, halides and/or alloys. The coated abrasive grains are used as a starting material for the manuf. of **metal-bonded** whetstones that have a working life 3 times longer than that of whetstones made from uncoated abrasive grains.

IC ICM B24D003-00
ICS C23C018-12

CC 57-7 (Ceramics)

IT **1308-38-9**, **Chromium oxide** (Cr2O3), reactions 11101-78-3
(reaction of, with diamond abrasive grains in fluoride-contg. molten halides, for chromium carbide-coated abrasives, for whetstones)

IT 7447-40-7, Potassium chloride, reactions **7681-49-4**, **Sodium fluoride**, reactions 10361-37-2, Barium chloride, reactions
(reaction of, with metal oxides, in coating of abrasive grains with borides and carbides and nitrides)

L98 ANSWER 20 OF 38 HCA COPYRIGHT 1997 ACS
111:200526 Functional, reaction-sintered **composite** ceramic products, and their manufacture and uses. Yasutomi, Yoshiyuki; Miyoshi, Tadahiko; Sobue, Masahisa (Hitachi, Ltd., Japan). Eur. Pat. Appl. EP 331160 A2 890906, 15 pp. DESIGNATED STATES: R: CH, DE, FR, GB, IT, LI, NL, SE. (English). CODEN: EPXXDW. APPLICATION: EP 89-103646 890302. PRIORITY: JP 88-49544 880304.

AB The title ceramics consist of (a) particles and/or fibers of .gtoreq.1 functional inorg. materials having some of a piezoelec. function, dielec. character, magnetic character, heat conductive character, electron emissivity, catalytic activity, sensing function, and biol. function, and (b) a ceramic formed from metal particles during sintering. They are manufd. by shaping mixts. selected from the material described in (a) and particles of .gtoreq.1 of Group III, IV, V, VI, and VIII metals, and reaction sintering the greenware in a reactive gas to form the ceramics from the metals. The products comprise low-resistivity and high-permittivity materials comprising BiTiO3 and Ti nitride, low-resistivity piezoelec. materials comprising PbTiO3 and Cr nitride, low-resistivity catalysts comprising TiO2 and reaction-sintered products of Ti, low-resistivity, electron-emissive materials comprising LaB6 and reaction-sintered products of Si, multilayer circuit boards manufd. by forming reaction sintered products contg. cubic BN and Si oxide formed during firing, and provided with a wiring pattern, and laminating and sintering the assemblies, artificial bones and teeth comprising apatite and Al2O3 and Ti nitride, resp., both formed during firing, temp. sensors comprising either CoO and reaction-sintered products of Ti, or FeO and TiN formed during firing, piezoelec. materials in which resistivity and piezoelec. character vary continuously or stepwise from place to place, and multilayer circuit boards comprising Al2O3 and Si nitride formed during firing and provided with a wiring pattern. These conductive or resistive products have superior resistance to corrosion, heat, and oxidn., and high dimensional accuracy. A mixt. of polyethylene wax, other synthetic wax, and stearic acid 9 (each) and a mixt. of 30 wt.% Si (av. particle size 1 .mu.m) and 70 wt.% Fe (av. particle size 20 .mu.m) 100 wt. parts were kneaded at 160.degree. for 5 h, crushed, shaped at 160.degree. and 100 kg/cm2, and the resulting hollow cylinders were heated to 500.degree. at 3.degree./h in Ar, in N and stepwise to 800.degree. at 2.degree./min and to 1500.degree. while applying a magnetic field of 3000 G to give reaction-sintered products contg. 5 vol.% Si3N4 whiskers, having dimensionally changed 0.8% during sintering, and having resistivity 3 .times. 104 .OMEGA.-m, magnetic flux d. 1000 G, and flexural strength 360 MPa.

IC ICM C04B035-65
CC 57-2 (Ceramics)
Section cross-reference(s): 63, 67, 76
ST reaction sintered ceramic **composite** fiber; piezoelec ceramic **composite**; dielec ceramic **composite**;

magnetic ceramic **composite**; catalyst ceramic **composite**; temp sensor ceramic **composite**; dental prothesis ceramic **composite**; thermal cond ceramic **composite**; electron emissivity ceramic **composite**

IT Electric capacitors
(barium titanate-titanium nitride **composites**, manuf. of low-resistivity and high-permittivity, reactive sintering in)

IT Piezoelectric substances
(chromium nitride-lead titanate **composites**, manuf. of reaction sintering in)

IT Ceramic materials and wares
(**composites**, manuf. of, reaction sintering in, for multiple function applications)

IT Metals, reactions
(sintering of powd. mixts. contg., reaction, for **composite** ceramics having multiple functional applications)

IT 12033-89-5P, Silicon nitride (Si3N4), uses and miscellaneous
(ceramics, **composites**, multilayer printed circuit boards contg. alumina and, reactive sintering in manuf. of)

IT 409-21-2P, Silicon carbide (SiC), uses and miscellaneous
10043-11-5P, Boron nitride, uses and miscellaneous
(cubic, fibers and particles, multifunctional **composite** ceramics contg., reaction sintering in manuf. of)

IT 1304-56-9P, Beryllium oxide (BeO) 1307-96-6P, Cobalt oxide (CoO), uses and miscellaneous **1308-38-9P**, **Chromium oxide** (Cr2O3), uses and miscellaneous 1309-37-1P, Iron oxide (Fe2O3), uses and miscellaneous 1309-48-4P, Magnesia, uses and miscellaneous 1312-43-2P, Indium oxide (In2O3) 1313-99-1P, Nickel oxide (NiO), uses and miscellaneous 1314-13-2P, Zinc oxide (ZnO), uses and miscellaneous 1314-23-4P, Zirconia, uses and miscellaneous 1314-34-7P, Vanadium oxide (V2O3) 1314-35-8P, Tungsten oxide (WO3), uses and miscellaneous 1314-36-9P, Yttrium oxide (Y2O3), preparation 1314-98-3P, Zinc sulfide (ZnS), preparation 1317-61-9P, Iron oxide (Fe3O4), preparation 1317-61-9P, Iron oxide (Fe3O4), uses and miscellaneous 1335-25-7P, Lead oxide 1344-28-1P, Alumina, uses and miscellaneous 1344-43-0P, Manganese oxide (MnO), uses and miscellaneous 1345-25-1P, Iron oxide (FeO), uses and miscellaneous 7439-89-6P, Iron, uses and miscellaneous **7440-06-4P**, Platinum, uses and miscellaneous **7440-22-4DP**, Silver, halides 7631-86-9P, Silica, uses and miscellaneous 7778-18-9P, Calcium sulfate (CaSO4) **7789-75-5P**, **Calcium fluoride** (**CaF2**), uses and miscellaneous 10103-46-5P 12003-42-8P 12005-95-7P, Manganese arsenide (MnAs) 12008-21-8P, Lanthanum boride (LaB6) 12009-18-6P, Barium tin oxide (BaSnO3) 12009-21-1P, Barium zirconate (BaZrO3) 12010-50-3P 12011-67-5P, Iron carbide (Fe3C) **12018-01-8P**, **Chromium oxide** (**CrO2**) 12018-68-7P 12018-79-0P, Copper iron oxide (CuFe2O4) 12020-60-9P, Europium oxide (EuO) 12020-65-4P, Europium sulfide (EuS) 12022-68-3P,

Iron samarium oxide (FeSmO3) 12023-70-0P 12031-18-4P, Lanthanum nickel oxide (LaNiO3) 12031-63-9P, Lithium niobium oxide (LiNbO3) 12031-66-2P, Lithium tantalum oxide (LiTaO3) 12032-52-9P 12032-82-5P 12033-07-7P, Manganese nitride (Mn4N) 12034-88-7P, Lead niobate (PbNb2O6) 12036-21-4P, Vanadium oxide (VO2) 12042-11-4P 12045-15-7P, Manganese boride (MnB) 12047-11-9P, Barium iron oxide (BaFe12O19) 12047-27-7DP, Barium titanate (BaTiO3), solid solns. with rare earth titanates 12047-27-7P, Barium titanate (BaTiO3), uses and miscellaneous 12049-50-2P, Calcium titanate (CaTiO3) 12052-28-7P, Cobalt ferrate (CoFe2O4) 12052-39-0P 12052-89-0P 12060-00-3P, Lead titanate (PbTiO3) 12060-01-4P, Lead zirconate (PbZrO3) 12063-10-4P, Iron manganese oxide (Fe2MnO4) 12063-50-2P, Iron gadolinium oxide (Fe5Gd3O12) 12063-56-8P, Iron yttrium oxide (Fe5Y3O12) 12068-86-9P, Magnesium ferrate (MgFe2O4) 12070-06-3P, Tantalum carbide (TaC) 12070-08-5P, Titanium carbide (TiC) 12168-54-6P, Nickel ferrate (NiFe2O4) 12249-44-4P, Cesium silver oxide (AgCsO) 12340-04-4P, Yttrium oxide sulfide (Y2O2S) 12444-07-4P 12676-60-7P, Lanthanum lead titanium zirconium oxide ((La,Pb,Ti,Zr)O3) 12775-85-8P 13463-67-7P, Titania, preparation 13709-38-1P, Lanthanum fluoride (LaF3) 15769-60-5P, Strontium titanium oxide (85SrTiO3) 18282-10-5P, Tin oxide (snO2) 20539-23-5P 20667-12-3P, Silver oxide (Ag2O) 39306-22-4P 53997-28-7P, Thorium, tungsten 79304-56-6P, Bismuth zinc oxide (Bi2ZnO4) 107957-95-9P, Barium lead titanium zirconium oxide ((Ba,Pb,Ti,Zr)O3) 108729-85-7P, Cobalt lanthanum strontium oxide (Co(La,Sr)O3) 112073-27-5P, Niobium potassium sodium oxide (Nb(K,Na)O3) 116640-26-7P, Barium calcium strontium oxide ((Ba,Ca,Sr)O) 120306-27-6P, Lead strontium titanium zirconium oxide ((Pb,Sr)(Ti,Zr)O3) 123550-14-1P, Calcium lanthanum manganese oxide (Ca0.5La0.5MnO3)
(fibers and particles, multifunctional **composite** ceramics contg., reaction sintering in manuf. of)

IT 12626-81-2P, Lead titanium zirconium oxide (Pb(Ti,Zr)O3)
(fibers and particles, multifunctional **composite** ceramics contg., reaction-sintering in manuf. of)

IT 11116-16-8P, Titanium nitride 12705-37-2P, Chromium nitride
(formation of, in reactive sintering, in low-resistivity high-permittivity **composite** ceramic capacitor manuf.)

IT 7440-21-3, Silicon, uses and miscellaneous
(mixts. contg. lanthanum boride and, reactive sintering of, for low-resistivity electron emissive **composite** ceramics)

IT 7429-90-5, Aluminum, uses and miscellaneous 7429-91-6, Dysprosium, uses and miscellaneous 7439-94-3, Lutetium, uses and miscellaneous 7439-96-5, Manganese, uses and miscellaneous 7439-98-7, Molybdenum, uses and miscellaneous 7440-00-8, Neodymium, uses and miscellaneous 7440-02-0, Nickel, uses and miscellaneous 7440-03-1, Niobium, uses and miscellaneous 7440-10-0, Praseodymium, uses and miscellaneous 7440-19-9, Samarium, uses and miscellaneous 7440-21-3, Silicon, uses and miscellaneous 7440-25-7, Tantalum, uses and miscellaneous 7440-27-9, Terbium, uses and miscellaneous 7440-29-1, Thorium, uses and miscellaneous

7440-32-6, Titanium, uses and miscellaneous 7440-33-7, Tungsten, uses and miscellaneous 7440-45-1, Cerium, uses and miscellaneous 7440-47-3, Chromium, uses and miscellaneous 7440-48-4, Cobalt, uses and miscellaneous 7440-53-1, Europium, uses and miscellaneous 7440-54-2, Gadolinium, uses and miscellaneous 7440-60-0, Holmium, uses and miscellaneous 7440-62-2, Vanadium, uses and miscellaneous 7440-64-4, Ytterbium, uses and miscellaneous 7440-67-7, Zirconium, uses and miscellaneous
(sintering of powd. mixts. contg., reaction, for **composite** ceramics having multiple functional applications)

L98 ANSWER 21 OF 38 HCA COPYRIGHT 1997 ACS
111:178735 Briquets for inoculation of cast iron. Grachev, V. A.; Gorelov, N. A.; Semushkin, A. V. (Penza Polytechnic Institute, USSR). U.S.S.R. SU 1498792 A1 890807 From: Otkrytiya, Izobret. 1989, (29), 83. (Russian). CODEN: URXXAF. APPLICATION: SU 87-4343348 871026.
AB The mixt. for high-strength briquets for inoculation of cast iron for improved mech. properties contains 2-4% inorg. binder, powd. Al 15-35, fluorspar 2-10, graphite 1-5%, and ferrosilicon and/or silicobarium the balance. The inorg. binder consists of 3MgCO3.Mg(OH)2 52-56, **CrO3** 2.6-2.9, Cr2O3 11.2-11.9, TiO2 23.3-26.0%, and water the balance.
IC ICM C21C001-08
ICS C22C035-00
CC 55-2 (Ferrous Metals and Alloys)
IT **1308-38-9**, **Chromium oxide** (Cr2O3), properties **1333-82-0**, **Chromium oxide** (**CrO3**)
(**binder** contg., for briquets for inoculation of cast iron)
IT 7429-90-5, Aluminum, uses and miscellaneous 7782-42-5, Graphite, uses and miscellaneous 8049-17-0, Ferrosilicon **14542-23-5**, Fluorite, uses and miscellaneous 39439-85-5, Silicobarium
(briquets contg., for inoculation of cast iron)

L98 ANSWER 22 OF 38 HCA COPYRIGHT 1997 ACS
111:121185 Ionic nature of bonds in crystals of transition metal compounds. Kesler Ya. A. (Mosk. Gos. Univ., Moscow, USSR). Dokl. Akad. Nauk SSSR, 306(5), 1152-7 [Phys. Chem.] (Russian) 1989. CODEN: DANKAS. ISSN: 0002-3264.
AB A revision was made of the Levine method and the revised method was used to calc. the bond parameters, heats of formation, and dielec. consts. for different transition metal compds. The results agree with the available exptl. data.
CC 65-3 (General Physical Chemistry)
Section cross-reference(s): 69, 75, 76
ST **bond** ionicity transition **metal** compd; dielec const transition metal compd; Levine quantum chem
IT **Bond**

(a transition **metal** compds., ionicity of)
IT Transition **metals**, compounds
(**bonds** of, calcn. of)
IT 409-21-2, Silicon carbide (SiC), properties 1302-74-5, Corundum (Al2O3), properties 1302-81-4, Aluminum sulfide (Al2S3) 1305-78-8, Calcium oxide (CaO), properties 1306-38-3, Cerium oxide (CeO2), properties 1307-96-6, Cobalt oxide (CoO), properties **1308-38-9**, **Chromium oxide** (Cr2O3), properties 1309-36-0, Pyrite (FeS2), properties 1309-37-1, Iron oxide (Fe2O3), properties 1309-48-4, Magnesium oxide (MgO), properties 1309-60-0, Lead oxide (PbO2) 1310-53-8, Germanium oxide (GeO2), properties 1312-43-2, Indium oxide (In2O3) 1313-13-9, Manganese oxide (MnO2), properties 1313-99-1, Nickel oxide (NiO), properties 1314-13-2, Zinc oxide (ZnO), properties 1314-20-1, Thorium oxide (ThO2), properties 1314-23-4, Zirconium oxide (ZrO2), properties 1314-34-7, Vanadium oxide (V2O3) 1314-36-9, Yttrium oxide (Y2O3), properties 1317-34-6, Manganese oxide (Mn2O3) 1317-61-9, Iron oxide (Fe3O4), properties 1317-80-2, Rutile (TiO2) 1317-92-6, Tenorite (CuO) 1344-43-0, Manganese oxide (MnO), properties 1344-54-3, Titanium oxide (Ti2O3) 1345-25-1, Iron oxide (FeO), properties 7782-64-1, Manganese fluoride (MnF2) **7783-40-6**, **Magnesium fluoride** (**MgF2**) 7783-49-5, Zinc fluoride (ZnF2) 7789-19-7, Copper fluoride (CuF2) 7789-28-8, Iron fluoride (FeF2) 10026-17-2, Cobalt fluoride (CoF2) 10028-18-9, Nickel fluoride (NiF2) 10049-10-2, Chromium fluoride (CrF2) 12013-10-4, Cobalt sulfide (CoS2) **12018-01-8**, **Chromium oxide** (**CrO2**) 12018-22-3, Chromium sulfide (Cr2S3) 12018-23-4, Chromium zinc sulfide (Cr2ZnS4) 12022-46-7 12024-21-4, Gallium oxide (Ga2O3) 12024-22-5, Gallium sulfide (Ga2S3) 12031-63-9 12031-82-2 12032-36-9, Magnesium sulfide (MgS) 12035-51-7, Nickel sulfide (NiS2) 12035-98-2, Vanadium oxide (VO) 12036-21-4, Vanadium oxide (VO2) 12036-35-0, Rhodium oxide (Rh2O3) 12053-26-8 12060-08-1, Scandium oxide (Sc2O3) 12063-19-3, Iron zinc oxide (Fe2ZnO4) 12067-06-0, Rhodium sulfide (Rh2S3) 12068-49-4, Aluminum iron oxide (Al2FeO4) 12068-53-0, Aluminum zinc oxide (Al2ZnO4) 12068-77-8, Chromium iron oxide (Cr2FeO4) 12069-94-2, Niobium carbide (NbC) 12070-08-5, Titanium carbide (TiC) 12070-14-3, Zirconium carbide (ZrC) 12125-23-4, Manganese sulfide (MnS2) 12137-20-1, Titanium oxide (TiO) 12139-08-1, Cadmium chromium selenide (CdCr2Se4) 12166-29-9, Scandium sulfide (Sc2S3) 12169-28-7, Sphalerite (ZnS) 13778-37-5, Stishovite (SiO2) 18282-10-5, Tin oxide (SnO2) 18820-29-6, Manganese sulfide (MnS) 20548-54-3, Calcium sulfide (CaS) 24094-93-7, Chromium nitride (CrN) 24621-21-4, Niobium nitride (NbN) 24646-85-3, Vanadium nitride (VN) 25583-20-4, Titanium nitride (TiN) 25658-42-8, Zirconium nitride (ZrN) 25764-12-9, Scandium nitride (ScN) 25764-13-0, Yttrium nitride (YN) 39312-01-1, Cadmium scandium sulfide (CdSc2S4)
(ionicity of **bonds** of, calcn. of)

L98 ANSWER 23 OF 38 HCA COPYRIGHT 1997 ACS
109:235819 Enameled stainless steel products. Inagaki, Koshiro; Tanaka, Kazuya (Ejiry Co., Ltd., Japan; Token Sangyo K. K.). Jpn. Kokai Tokkyo Koho JP 63157881 A2 880630 Showa, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 86-306068 861222.
AB Stainless steel substrates are coated with an heat-resistant underlayer contg. .gtoreq.1 of powd. metal-alkali **metal** silicate **binder**, powd. **metal**-inorg. phosphate **binder**, and orthophosphate **binder** contg. dispersed **metal** powder and Mg compd., such as chromate, and with a ceramic enamel optionally contg. the above binder and fired to obtain enameled stainless steel products. Thus, a Zn-water glass mixt. was coated on a stainless steel substrate, an enamel slip contg. KNaO 20, **CaF2** 5, Al2O3 5, B2O3 15, SiO2 55, Co3O4 2.30, and Ni oxide-**Cr oxide**-K2Cr2O7-based green pigment 3 parts was applied to the coated substrate, and fired at 900.degree. to obtain an enameled product having a tensile strength of 740 kg/cm2 at the bonding face which did not crack after hit by a 500-g steel ball falling from 1 m height.
IC ICM C23D005-04
ICS C23D005-00
CC 57-4 (Ceramics)
Section cross-reference(s): 55

L98 ANSWER 24 OF 38 HCA COPYRIGHT 1997 ACS
106:200865 Binder for producing high-temperature concrete. Nekrasov, K. D.; Zhivaev, I. A.; Ramazaeva, L. F.; Krayukhin, V. I. (Saratov Polytechnic Institute, USSR). U.S.S.R. SU 1278334 A1 861223 From: Otkrytiya, Izobret. 1986, (47), 90. (Russian). CODEN: URXXAF. APPLICATION: SU 85-3842804 850116.
AB For increased concrete strength and decreased porosity, the binder contains H3PO4 30-36 as phosphate binder, kaolin 12-17, and Al2O3 balance as fine-ground filler, as well as 2% **Cr oxide** soln. 12-17 and **NaF** 2-7 in addn. to Al powder 14-20 wt.%.
IC ICM C04B028-34
CC 58-2 (Cement, Concrete, and Related Building Materials)
ST high temp concrete low porosity; phosphoric acid low porosity concrete; kaolin alumina low porosity concrete; **sodium fluoride** low porosity concrete; **chromium oxide** low porosity concrete
IT 1344-28-1, Alumina, uses and miscellaneous 7664-38-2, Phosphoric acid, uses and miscellaneous **7681-49-4**, **Sodium fluoride**, uses and miscellaneous 11118-57-3, **Chromium oxide**
(**binder**, for high-temp. concrete for increased strength and decreased porosity)

L98 ANSWER 25 OF 38 HCA COPYRIGHT 1997 ACS
102:81686 Thermomanometric analysis of **composite** materials for solar selective surfaces. Chow, S. P.; Harding, G. L. (Sch. Phys.,

Univ. Sydney, Sydney, 2006, Australia). Sol. Energy Mater., 11(1-2), 123-40 (English) 1984. CODEN: SOEMDH. ISSN: 0165-1633.

AB Gas evolution from 3 types of selective surface for evacuated solar collectors was studied using thermomanometry and mass spectrometry. The surfaces incorporate sputtered stainless steel-C, sputtered Al-Ni, and evapd. Cr-O absorbing layers. Outgassing of CO and H occurs from all the selective surfaces. CO evolution from the metal-C surface is strongly dependent on the O contamination in the sputtered absorbing layer. Attempts to minimize O contamination in the stainless steel-C surface were unsuccessful; however, the optical properties of the heat-treated selective surface are relatively unaffected by the O contamination. The outgassing from the Al-Ni selective surface is considerably lower than that for the stainless steel-Ca selective surface. Similar studies from samples of heat-treated Cr-O selective surfaces suggest that the evacuated collectors contg. this surface may operate at .ltoreq.400.degree. without serious outgassing from the selective surface. The outgassing results obtained show that for some materials, thermomanometry combined with mass spectrometry is a sensitive technique for detection of impurities.

CC 52-3 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 73

ST solar collector absorber gas evolution; thermomanometry solar absorber; mass spectrometry solar absorber; stainless steel carbon solar absorber; aluminum nitride solar absorber; **chromium oxide** solar absorber

IT Solar collectors
(absorbers, thermomanometric anal. of **composite** materials for evacuated)

IT 1299-86-1 **7783-40-6** 7784-18-1
(solar selective surfaces with antireflection layer of, thermomanometric anal. of)

IT 7429-90-5, uses and miscellaneous **7440-50-8**, uses and miscellaneous
(solar selective surfaces with base layer of, thermomanometric anal. of)

L98 ANSWER 26 OF 38 HCA COPYRIGHT 1997 ACS

98:127011 A three-point flexure test configuration for improved sensitivity to **metal/adhesive** interfacial phenomena. Roche, A. A.; Behme, A. K., Jr.; Solomon, J. S. (Dep. Chim. Appl., Univ. Claude Bernard, Villeurbanne, Fr.). Int. J. Adhes. Adhes., 2(4), 249-54 (English) 1982. CODEN: IJAADK. ISSN: 0143-7496.

AB A 3-point flexure test was used to detn. the effects of chem. surface treatment [CCl4 degreasing, alkali, HNO3/HF, Na3PO4/**NaF**/HF, NH4HF2, H2SO4/**CrO3**, HNO3/HF/H2O2/NH4F.HF, or hot NaOH/H2O2] on the performance of adhesive-bonded Ti6Al4V. A single structure was more sensitive to prebonding surface treatment than a sandwich configuration. Mech. properties were related to the surface treatment. Photoelastic isochromatic fringes were recorded

simultaneously in the flexure test to monitor stress distribution, failure initiation, and crack propagation.
CC 37-5 (Plastics Manufacture and Processing)

L98 ANSWER 27 OF 38 HCA COPYRIGHT 1997 ACS
94:5218 High-temperature self-lubricating coatings for air-lubricated foil bearings for the automotive gas turbine engine. Bhushan, Bharat (Mech. Technol., Inc., Latham, NY, USA). NASA [Contract. Rep.] CR, NASA-CR-159848, DOE/NASA/0043-2, 232 pp. Avail. NTIS From: Sci. Tech. Aerosp. Rep. 1980, 18(17), Abstr. No. N80-26448 (English) 1980. CODEN: NSCRAQ. ISSN: 0565-7059.
AB Coating combinations were developed for compliant surface bearings and journals to be used in an automotive gas-turbine engine. The coatings were able to withstand the sliding start/stops during rotor liftoff and touchdown and occasional short-time, high-speed rubs under representative loading of the engine. Several coating variations of CdO-graphite, Cr2O3 (by sputtering), and **CaF2** (plasma sprayed) were identified. The coatings were optimized and examd. for stoichiometry, metallurgical condition, and adhesion. Sputtered Cr2O3 was most adherent when optimum parameters were used and it was applied on an annealed (soft) substrate. **Metallic binders** and interlayers were used to improve the ductility and the adherence.
CC 47-8 (Apparatus and Plant Equipment)
ST air lubricant foil bearing; engine turbine air bearing; coating air bearing; **chromium oxide** coating bearing
IT 1306-19-0, uses and miscellaneous **1308-38-9**, uses and miscellaneous 7782-42-5, uses and miscellaneous 7790-79-6 (coatings, for bearings lubricated by air)

L98 ANSWER 28 OF 38 HCA COPYRIGHT 1997 ACS
90:208375 Static evaluation of surface coatings for compliant gas bearings in an oxidizing atmosphere to 650.degree.C. Bhushan, Bharat; Gray, Stanley (Tribol. Cent., Mech. Technol. Inc., Latham, N. Y., USA). Thin Solid Films, 53(2), 313-31 (English) 1978. CODEN: THSFAP. ISSN: 0040-6090.
AB Hard wear-resistant coatings and soft low-shear strength coatings were considered for air-**lubricated** compliant journal bearings for automobile gas turbine engines. Soft **lubricant** coatings were generally limited by temp. Therefore, hard TiC, B4C, Cr3C2, WC, SiC, CrB2, TiB2, Cr2O3, Al2O3, Si3N4, Tribaloy 800 [**51141-97-0**], **CaF2-BaF2** eutectic, Ni-Co [12667-63-9] alloys, Ag, CdO-graphite **composite** and proprietary coatings on Inconel X-750 [**11145-80-5**] foil and A-286 [**12671-82-8**] shaft alloy substrates were investigated. Coupons were exposed 300 h at 540-650.degree. and 10 temp. cycles from room temp. to the max. service temp. The most promising coatings for future wear tests were sputtered TiC, sputtered Cr2O3, sputtered Si3N4, fused HL-800 [70294-80-3] CdO-graphite, Kaman DES [68993-92-0], plasma-sprayed CrB2, detonation gun-sprayed Cr3C2, and plasma-sprayed NASA PD-106

[70249-08-0].
CC 56-5 (Nonferrous Metals and Alloys)
IT Coating materials
(for wear resistance, on compliant air-**lubricated** journal bearings)
IT Turbines
(gas, bearings for, wear-resistant coatings for compliant air-**lubricated** journal)
IT Bearings
(journal, wear-resistant coatings for compliant air-**lubricated**)
IT **1308-38-9**, uses and miscellaneous 1344-28-1, uses and miscellaneous **7440-22-4**, uses and miscellaneous
7787-32-8D, eutectic with **calcium fluoride**
7789-75-5D, eutectic with **barium fluoride**
12007-16-8 12012-35-0 12033-89-5, uses and miscellaneous
12045-63-5 12069-32-8 12070-08-5 12070-12-1 12667-63-9
51141-97-0 68993-92-0 70249-08-0 70294-80-3
(coatings of, on compliant air-**lubricated** journal bearings)
IT 7782-42-5, uses and miscellaneous
(**composite** with cadmium oxide, coatings of, on compliant air-**lubricated** journal bearings)
IT 1306-19-0, uses and miscellaneous
(**composite** with graphite, coatings of, on compliant air-**lubricated** journal bearings)
IT **11145-80-5 12671-82-8**
(wear-resistant coatings on, for compliant air-**lubricated** journal bearings)

L98 ANSWER 29 OF 38 HCA COPYRIGHT 1997 ACS
90:58882 Properties of melts for heat treatment and thermal etching of metals with scale. I. Pomel'nikova, A. S.; Tarasko, D. I.; Plyshevskii, A. A.; Govorov, A. A.; Perminov, A. A. (Sib. Metall. Inst., Novokuznetsk, USSR). Izv. Vyssh. Uchebn. Zaved., Chern. Metall. (10), 129-32 (Russian) 1978. CODEN: IVUMAX. ISSN: 0368-0797.
AB The effects of various additives were studied on the surface tension of Na borosilicate melts NBS-2 [68859-64-3] and NBS-3 [68859-65-4] used for heat treatment of steels. SiO2, BaO, and Fe2O3 increased, whereas B2O3, Na3AlF6, **KF**, and Cr2O3 decreased the surface tension. The effects of various additives were related to the metal-O and **metal**-F **bond** energies.
CC 55-5 (Ferrous Metals and Alloys)
IT 1304-28-5, uses and miscellaneous **1308-38-9**, uses and miscellaneous 1309-37-1, uses and miscellaneous 7631-86-9, uses and miscellaneous **7789-23-3** 13775-53-6
(in borosilicate melts, surface tension in relation to)

L98 ANSWER 30 OF 38 HCA COPYRIGHT 1997 ACS
87:32310 Effective coordination number of atoms in crystals. Batsanov,

S. S. (USSR). Zh. Neorg. Khim., 22(5), 1155-9 (Russian) 1977. CODEN: ZNOKAQ.

AB A bond-energy calcn. method is proposed for detg. the effective coordination nos. of atoms with irregular polyhedrons. Calcns. are given for 66 halides, chalcogenides, and Se and Te. The use of this method for interpreting structural classifications and properties is discussed.

CC 75-5 (Crystallization and Crystal Structure)
Section cross-reference(s): 65

IT 1303-33-9 1309-60-0 1310-53-8, properties 1313-13-9, properties 1317-36-8, properties 1344-48-5 1345-04-6 7446-07-3 7446-70-0, properties 7546-30-7 7647-18-9 7727-15-3 7758-95-4 7782-49-2, properties 7782-64-1 **7783-40-6** 7783-49-5 7783-53-1 7783-56-4 7783-59-7 7783-62-2 7787-62-4 7789-19-7 7789-27-7 7789-28-8 7789-30-2 7789-61-9 7790-30-9 10025-91-9 10026-08-1 10026-10-5 10026-17-2 10028-18-9 10031-18-2 10049-05-5 10049-10-2 10049-25-9 10361-92-9 10476-86-5 **12018-01-8** 12030-49-8 12036-14-5 12036-22-5 13453-49-1 13463-67-7, properties 13470-21-8 13478-28-9 13494-80-9, properties 13709-38-1 13709-49-4 13775-07-0 13870-21-8 13940-63-1 13967-25-4 18282-10-5 21908-53-2
(**coordination** no. of crystals of)

L98 ANSWER 31 OF 38 HCA COPYRIGHT 1997 ACS

86:45955 Effect of chromium on the kinetics and mechanism of the dephosphorization of an iron-carbon melt by injection of powders. Magidson, I. A.; Morozov, A. S.; Sidorenko, M. F.; Kosyrev, L. K. (Moscow, USSR). Izv. Akad. Nauk SSSR, Met. (5), 32-5 (Russian) 1976. CODEN: IZNMAQ.

AB The dephosphorization was examd. of steels contg. 0.8-3.25% Cr during injection of a synthetic powder (CaO 18, FeO 47, **CaF2** 25, SiO2 5, MgO 3 and Al2O3 2%) and CaO (1:1). The kinetic curves logCCr vs. T (CCr is the Cr concn. in the metal) consisted of 2 linear portions with a discontinuity. On increasing the initial Cr content in the metal, the discontinuity became less pronounced and the initial portion expanded to higher P concns. The partition coeff. L.THETA. (L is the ratio of the Cr concn. in the slag to that in the metal and .THETA. the efficiency of the slag droplets) was detd. from the slope of the logCCr vs. t curves. When dephosphorizing with the mixt. L.THETA. decreases monotonically with CCr but the process rate is higher than if applying nonoxidizing mixts. (CaO + **CaF2**). The obsd. drop in L.THETA. is caused by simultaneous decrease in L and .THETA.; the latter was assocd. with the appearance of dispersed **Cr oxides** at a slag-**metal** interphase **boundary** (which slows the mass-transfer process) and a decreased diffusion mobility of P in the slag.

CC 55-1 (Ferrous Metals and Alloys)

L98 ANSWER 32 OF 38 HCA COPYRIGHT 1997 ACS

84:34547 Solid **lubricant** filled foams for high-temperature applications. Amato, I.; Cappelli, P. G.; Martinengo, P. C. (Fiat S.p.A., Lab. Cent., Turin, Italy). Wear, 34(1), 65-75 (English) 1975. CODEN: WEARAH.

AB Solid **lubricating composites** were developed for high-temp. applications by filling foam-like structures of Ni-Cr alloy [**11105-45-6**] with NiO [1313-99-1]-**CaF2** [**7789-75-5**], Fe2O3 [1309-37-1]-NiO, or Fe2O3-Cr2O3 [**1308-38-9**] mixts. To fill the metallic structure, a slurry was used with a compn. of 50-60% **lubricant** in 40-50% aq. K silicate soln. Oxidn. rates, dimensional stability, and **lubricating** properties were detd. at .ltoreq.700.degree. by using a pin and disk machine and a machine simulating gas seals in rotating regenerators of gas turbine engines. All **composites** were satisfactory. The best results were obtained with Fe2O3-Cr2O3 filled Ni-Cr alloy foam. Friction coeff. was 0.15, and wear rate was 0.37.mu./hr at 650.degree. under a load of 1.2 kg/cm2.

CC 56-7 (Nonferrous Metals and Alloys)
Section cross-reference(s): 51

ST **lubricant** filling metallic foam; nickel chromium filling solid **lubricant**

IT Turbines
(seals for, self-**lubricating**)

IT Seals (mechanical)
(self-**lubricating**, for gas turbines)

IT **1308-38-9**, uses and miscellaneous 1309-37-1, uses and miscellaneous 1313-99-1, uses and miscellaneous **7789-75-5**, uses and miscellaneous
(**lubricant**, in nickel-chromium alloy self-**lubricating** turbine seals)

IT **11105-45-6**
(oxide-filled, for self-**lubricating** turbines seals)

L98 ANSWER 33 OF 38 HCA COPYRIGHT 1997 ACS

84:21045 Lining of cast steel tube with glass. Ohba, Shigeki (Showa Tekko K. K., Japan). Japan. Kokai JP 49110536 741021 Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 73-22313 730224.

AB Glass is clad on a cast object by coating a mold or a core with a slurry obtained by adding clay to a mixt. of powd. glass-forming materials contg. .ltoreq.1 refractory materials selected from Al2O3 and **Cr oxide**, etc. and a **binder** consisting of an acrylic acid-type monomer and Na silicate, then drying the slurry, and pouring molten metal into the mold. The process is simple and gives claddings which serve to prevent corrosion of cast objects. Thus, a glass-clad cast iron [11097-15-7] tube was obtained by fabricating a core from a self-hardening sand obtained with an org. resin, coating the surface of the core piece with a water-based paint contg. graphite and zircon and drying at 120.degree. for 1.5 hr, placing the core in a tubular mold, and pouring cast iron at 1435-1445.degree.. A typical

coating compn. consisted of 50 parts of a glass contg. SiO2 66.2, Al2O3 24.8, B2O3 7.68, Na2O 13.28, K2O 0.5, MgO 1.29, CaO 2.15, BaO 1.07, CoO 3.66, MnO2 1.51, 20 parts of another glass contg. SiO2 54.2, Al2O3 4.26, B2O3 8.6, Na2O 12.65, K2O 4.97, **CaF2** 3.32, **NaF** 7.25, AlF3 4.7%, Cr2O3 [**1308-38-9**] 30, clay 4, poly(Na acrylate) [25549-84-2] 20, and water 40 parts.

NCL 11B08

CC 55-6 (Ferrous Metals and Alloys)
Section cross-reference(s): 57

IT **1308-38-9**, uses and miscellaneous 25549-84-2
(glass linings contg., for cast iron pipes)

L98 ANSWER 34 OF 38 HCA COPYRIGHT 1997 ACS

82:178263 Coated aluminum substrates having a binder of aluminum hydroxyoxide. Mikelsons, Valdis (Minnesota Mining and Mfg. Co., USA). U.S. US 3871881 750318, 9 pp. (English). CODEN: USXXAM. APPLICATION: US 73-331372 730212.

AB Al supports with improved surface properties, esp. for printing plates, are obtained by reaction-bonding of oxides and sulfides to the Al surface, whereby a Al hydroxyoxide binder layer is formed in situ. Thus, a cleaned Al sheet was coated with a dispersion of TiO2 in isopropyl alc. to give a coating wt. of 0.00028g TiO2/cm2, the coated sheet exposed to steam for 15 min, dried, contacted with a 3% soln. of Pd chloride in isopropyl alc., dried, imagewise exposed to uv radiation for approx. 45 sec, washed with dil. HCl, and immersed in a commercial electroless Cu plating bath to give a lithog. plate having ink-receptive Cu deposited imagewise in the exposed areas and hydrophilic background areas.

IC G03G; G03C

NCL 096001500

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic Processes)

IT 471-34-1, reactions **1308-38-9**, reactions **7789-75-5**, reactions 7790-75-2
(**bonding** of, to aluminum supports, for protective layer)

L98 ANSWER 35 OF 38 HCA COPYRIGHT 1997 ACS

81:157772 Ceramic binder for abrasive tools. Fedotova, S. M.; Voronov, S. G.; Naumova, T. I.; Polyakova, T. B. U.S.S.R. SU 425772 740430 From: Otkrytiya, Izobret., Prom. Obraztsy, Tovarnye Znaki 1974, 51(16), 46. (Russian). CODEN: URXXAF. APPLICATION: SU 71-1664067 710531.

AB The title binder contained SiC, fluorite, clay, and a frit contg. Cr2O3 or Ni2O3 (to prevent the decompn. of SiC). The frit contained SiO2 65-70.0, Al2O3 3.5-5.0, B2O3 17.0-20.0, Na2O 1.0-1.5, K2O 4.5-5.0, Li2O 1.0-1.5, and Cr2O3 or Ni2O3 0.5-5 wt.%.

IC B24D

CC 57-6 (Ceramics)

ST ceramic binder abrasive tool; silicon carbide binder abrasive; fluorite ceramic binder abrasive; clay ceramic binder abrasive;

chromium oxide binder abrasive; nickel oxide binder abrasive

IT 409-21-2, uses and miscellaneous 1303-86-2, uses and miscellaneous 1313-59-3 12057-24-8 12136-45-7 **14542-23-5**
(binders, ceramic, for abrasive tools)

IT **1308-38-9**, uses and miscellaneous 1314-06-3
(**binders**, ceramic, for abrasives, silicon carbide decompn. in relation to)

L98 ANSWER 36 OF 38 HCA COPYRIGHT 1997 ACS

77:35802 Preliminary treatment of synthetic resin for metal plating. Kamiya, Nobuyuki; Funada, Kiyotaka; Ohsako, Akira; Negishi, Hiroshi; Shinohara, Takashi (Nippon Kagaku Kizai Co., Ltd.). Japan. JP 46028189 B4 710816 Showa, 4 pp. (Japanese). CODEN: JAXXAD. APPLICATION: JP 68-65429 680911.

AB In forming a conductive layer (by electroless coating) on a resin substrate to be electrocoated, a successive preimpregnation of the substrate with xylene [1330-20-7] (or dioxane [123-91-1] or acetone [67-64-1]), a chromic acid (or chromate)-H2SO4-AcOH (or an acetate) mixed soln., and a hydrofluoric acid [7664-39-3] soln. resulted in improved **adhesion** between **metal** and substrate. For example, polypropylene [9003-07-0] was impregnated with xylene for 1 hr, dried, impregnated with a soln. of 30 g **CrO3** and 50 g NaOAc in 1 l. 6:4 H2O-H2SO4 at 80.deg. for 40 min, washed, impregnated with 45% HF for 10 sec., and washed. The preimpregnated substrate was plated electrolessly (Ni-Co) and electroplated with copper [7440-50-8], nickel [7440-02-0], or chromium [7440-47-3] in the usual manner. Other F compds. used were ammonium fluoride [12125-01-8], fluoroboric acid [16872-11-0], **Na fluoride** [**7681-49-4**], and tin tetrafluoroborate [13814-97-6]. Other substrate resins were, e.g., acrylonitrile-butadiene-styrene copolymer (ABS) [9003-56-9], acrylonitrile-styrene copolymer [9003-54-7], and poly(vinyl chloride) [9002-86-2].

IC B29D; B29C; C23C

CC 37-2 (Plastics Fabrication and Uses)

ST fluorine compd electroplating resin; **adhesion metal** plated resin

IT 1330-20-7 **1333-82-0** 7664-39-3, uses and miscellaneous **7681-49-4**, uses and miscellaneous 12125-01-8 13814-97-6 16872-11-0
(surface treatment by, of plastics for metal coating)

L98 ANSWER 37 OF 38 HCA COPYRIGHT 1997 ACS

71:115459 Interfacial phenomena accompanying the contact of ferrochromium with nonmetallic inclusions and slags. Lobzhanidze, R. B.; Filippov, A. F.; Evseev, P. P. (Mosk. Inst. Stali Splavov, Moscow, USSR). Izv. Vyssh. Ucheb. Zaved., Chern. Met., 12(7), 56-9 (Russian) 1969. CODEN: IVUMAX.

AB The d. and the surface tension of ferrochromium were measured by employing the method of the max. pressure in a bubble. The metal

batch was melted in an alundum crucible in an Ar atm. The measured surface tension of the ferrochromium (970-1010 ergs/cm.2) was significantly less than the calcd. value (1370 ergs/cm.2) for the 2-component Fe-Cr system. The low surface tension is explained by the presence in the metal of surface-active elements C, P, S, and esp. O. The d. of the ferrochromium, depending on the Si content present, at 1700.degree. varied 6.89-6.96 g./cm.3 The wetting of nonmetallic inclusions by the ferrochromium was also studied. The largest edge angle (125.degree.) is obtained when MgO is used as the substrate. With increasing chem. interaction between the substrate and the metal this angle decreases. The MgO and Al2O3 inclusions should have somewhat greater removal rates than silicate particles. The study of the interfacial tension at the ferrochromium-slag boundary was done by the drop-on-drop method, by employing the app. used for investigating the wettability of oxide substrates by the metal. The magnitude of the interfacial tension at the **metal**-slag **boundary** was detd. by the difference in the construction of the contacting phases. The smaller is this difference, the lower is the surface tension, and the better do they become wetted to one another. Addn. of Cr2O3 to the **CaF2** melt 1st decreases and then increases the adhesiveness between the Cr melt and the slag. Generally, adding Cr2O3 to the slag lowers its refining properties.

CC 55 (Ferrous Metals and Alloys)

IT **1308-38-9**, properties
(interfacial, between chromium-iron alloys and slags contg.)

L98 ANSWER 38 OF 38 HCA COPYRIGHT 1997 ACS

68:81110 Inorganic chemical **binders** for powdered **metal** or other materials. Collins, Glenn A., Jr.; Phelps, Frederick L., Jr. (Teleflex Inc.). U.S. US 3352814 671114, 4 pp. (English). CODEN: USXXAM. APPLICATION: US 630628.

AB Strongly compacted bodies are produced by pressing at up to 15 tons/in.2 and curing at 500-900.degree.F. mixts. of such materials as Cu, Al, Ag, **CaF2**, graphite, refractory oxides, nitrides, carbides, and mixts. thereof, finer than 200-300 mesh, and moistened with 2-20 wt.% of an aq. binding soln. contg. phosphate ion 0.5-4.0, chromate ion 0.3-3.0 and metal ion such as Mg, Zn, Ca, Al, Fe, or Li 0.2-4.0 moles/l. This soln. can also contain 10-1000 g./l. aq. dispersion of Teflon or polytetrafluoroethylene when lubricity of the cured bodies is important, the 60% dispersion contg. Duponol wetting agent being suitable. The anions and cations mentioned can be combined in any way as salts, and any kind of phosphate, including acid, can be used. When such powder mixts. are dried and cured, the binder compds. become insol. and form a corrosion-resistant glassy matrix. Six specific binder compns. are recommended, such as H3PO4 196, MgO 50, MgCr2O7.6H2O 170, and Mg(H2PO4)2.6H2O 50 g./l. When 5 ml. of this soln. was mixed with 60 g. graphite finer than 5 .mu., and the paste was pressed to a small rectangular shape 1/2 in. thick at 15 tons/in.2, dried 48 hrs. at 150.degree.F. and cured 2 hrs. at 600.degree.F., it formed a good

strong brush for an elec. motor or generator, and a Cu wire connector could be inserted in it before pressing. This binder was also used in a castable slurry of 40 g. Al powder finer than 5 .mu. with 24 ml. of liq., which was poured into a porous paper mold, dried 50 hrs. at 150.degree.F., and cured 2 hrs. at 600.degree.F. to give a strong shape resembling polished Al when buffed. When 10 ml. of a binder contg. 180 g. H3PO4, 130 g. MgCr2O7.6H2O, 330 ml. 60% Teflon dispersion, and water to 1 l. was used to moisten 225 g. Cu powder finer than 325 mesh, which was pressed at 15 tons/in.2, dried 48 hrs. at 150.degree.F. and fired 2 hrs. at 800.degree.F., the body had good strength, lubricity, and cond., and was specially useful for commutators in elec. motors and generators.

NCL 260041000
CC 57 (Ceramics)
ST OXIDES BINDERS; GENERATORS CERAMIC BINDERS; SILVER BINDERS; **METALS** POWD **BINDERS**; CARBIDES BINDERS; GRAPHITE BINDERS; ALUMINUM BINDERS; BINDERS CERAMICS; COMMUTATORS CERAMIC BINDERS; COPPER BINDERS; NITRIDES BINDERS
IT Compaction
(of **metals** and refractories **bonded** with chromates and phosphates)
IT Phosphate, uses and miscellaneous
(**metals** and refractories **bonded** with, compaction of)
IT 13092-66-5 **13907-45-4** 14104-85-9
(**metals** and refractories **bonded** with, compaction of)

=> sel l98 1-38 hit rn
E1 THROUGH E32 ASSIGNED

=> file reg
FILE 'REGISTRY' ENTERED AT 12:04:51 ON 27 MAY 1997
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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DICTIONARY FILE UPDATES: 26 MAY 97 HIGHEST RN 189261-10-7

TSCA INFORMATION NOW CURRENT THROUGH DECEMBER 1996

Please note that search-term pricing does apply when conducting SmartSELECT searches.

[redacted] (typo)

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[redacted]

=> d l100 1-32 ide

← (compounds/alloys cited in the above abstracts of L98)

L100 ANSWER 1 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **180209-58-9** REGISTRY
CN Cobalt alloy, base, Co,Cr,Fe,Mo,Si (9CI) (CA INDEX NAME)
MF Co . Cr . Fe . Mo . Si
CI AYS

SR CA
LC STN Files: CA, CAPLUS

Component	Component Registry Number
Co	7440-48-4
Cr	7440-47-3
Fe	7439-89-6
Mo	7439-98-7
Si	7440-21-3

1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 2 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **160888-79-9** REGISTRY
CN Nickel alloy, base, Ni 45,Co 23,Cr 19,Al 12,Y 0.5 (9CI) (CA INDEX NAME)
MF Al . Co . Cr . Ni . Y
CI AYS
SR CA
LC STN Files: CA, CAPLUS

Component	Component Percent	Component Registry Number
Ni	45	7440-02-0
Co	23	7440-48-4
Cr	19	7440-47-3
Al	12	7429-90-5
Y	0.5	7440-65-5

1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 3 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **118889-98-8** REGISTRY
CN Nickel alloy, base, Ni 47,Co 23,Cr 17,Al 12,Y 0.5 (9CI) (CA INDEX NAME)
MF Al . Co . Cr . Ni . Y
CI AYS
SR CA
LC STN Files: CA, CAPLUS

Component	Component Percent	Component Registry Number
Ni	47	7440-02-0
Co	23	7440-48-4
Cr	17	7440-47-3

Al	12	7429-90-5
Y	0.5	7440-65-5

10 REFERENCES IN FILE CA (1967 TO DATE)
10 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 4 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **82824-75-7** REGISTRY
CN Nickel alloy, base, Ni,Al,Cr,Fe (9CI) (CA INDEX NAME)
MF Al . Cr . Fe . Ni
CI AYS
LC STN Files: CA, CAPLUS, TOXLIT, USPATFULL

Component	Component Registry Number
Ni	7440-02-0
Al	7429-90-5
Cr	7440-47-3
Fe	7439-89-6

6 REFERENCES IN FILE CA (1967 TO DATE)
6 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 5 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **62531-60-6** REGISTRY
CN Chromium carbide (Cr3C2), alloy, Cr3C2,Cr,Ni (9CI) (CA INDEX NAME)
MF C2 Cr3 . Cr . Ni
CI AYS
LC STN Files: CA, CAPLUS, USPATFULL

Component	Component Registry Number
Cr3C2	12012-35-0
Cr	7440-47-3
Ni	7440-02-0

41 REFERENCES IN FILE CA (1967 TO DATE)
41 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 6 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **54611-20-0** REGISTRY
CN Iron alloy, base, Fe 64-74,Cr 17.00-20.00,Ni 9.00-12.00,Mn 0-2.00,Si 0-1.00,Ti 0.16-0.60,C 0.04-0.10,P 0-0.040,S 0-0.030 (UNS S32109) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 09Cr18Ni10Ti
CN 09Kh18N10T
CN 10Cr18Ni10Ti
CN 10Kh18N10T

CN 10Kh18N10T-VD
CN 10Kh18N9T
CN 10Kh18N9TL
CN 1Cr18Ni10Ti
CN 1Cr18Ni9Ti
CN 1H18N10T
CN 1H18N9T
CN 1H19N10T
CN 1Kh18N10T
CN 1Kh18N9T
CN 321H
CN AISI 321H
CN AKVS9
CN ASME SA182-321H
CN ASME SA213-321H
CN ASME SA240-321H
CN ASME SA249-321H
CN ASME SA312-321H
CN ASME SA336-F321H
CN ASME SA376-321H
CN ASME SA403-321H
CN ASME SA430-321H
CN ASME SA479-321H
CN Cr18Ni9Ti
CN CSN 17 248
CN CSN 17248
CN CSN 41 7248
CN DIN 1.6903
CN ICL 474T
CN POLDI AKVS9
CN SA213TP321H
CN SUS 321H
CN SUS 321HTB
CN UNS S32109
CN X10CrNiTi18-10
CN ZG1Cr18Ni9Ti
DR 12718-45-5, 12742-16-4, 12742-17-5, 12746-20-2, 11134-04-6, 54958-21-3, 60224-68-2, 133352-06-4, 109265-91-0, 37241-79-5, 39369-69-2
MF C . Cr . Fe . Mn . Ni . P . S . Si . Ti
CI AYS
LC STN Files: ASMDATA*, CA, CAPLUS, METALCREEP*, TOXLIT, USPATFULL
(*File contains numerically searchable property data)

Component	Component Percent	Component Registry Number
Fe	64 - 74	7439-89-6
Cr	17.00 - 20.00	7440-47-3
Ni	9.00 - 12.00	7440-02-0
Mn	0 - 2.00	7439-96-5

Si	0	-	1.00	7440-21-3
Ti	0.16	-	0.60	7440-32-6
C	0.04	-	0.10	7440-44-0
P	0	-	0.045	7723-14-0
S	0	-	0.030	7704-34-9

1255 REFERENCES IN FILE CA (1967 TO DATE)
1256 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 7 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **51141-97-0** REGISTRY
CN Cobalt alloy, base, Co 45-55,Mo 26-29,Cr 16-18,Si 2.8-3.8,Fe 0-3,Ni 0-3,Mn 0-1,C 0-0.1 (Tribaloy T-800) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Jacoat T800
CN T-800
CN Tribaloy 800
CN Tribaloy T-800
MF C . Co . Cr . Fe . Mn . Mo . Ni . Si
CI AYS
LC STN Files: CA, CAPLUS, USPATFULL

Component	Component Percent			Component Registry Number
Co	45	-	55	7440-48-4
Mo	26	-	29	7439-98-7
Cr	16	-	18	7440-47-3
Si	2.8	-	3.8	7440-21-3
Fe	0	-	3	7439-89-6
Ni	0	-	3	7440-02-0
Mn	0	-	1	7439-96-5
C	0	-	0.1	7440-44-0

66 REFERENCES IN FILE CA (1967 TO DATE)
66 REFERENCES IN FILE CAPLUS (1967 TO DATE)

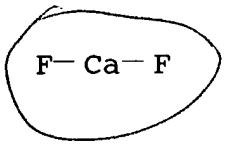
L100 ANSWER 8 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **51141-96-9** REGISTRY
CN Nickel alloy, base, Ni 45-52,Mo 31-33,Cr 14-16,Si 3-3.5,Co 0-3,Fe 0-3,C 0-0.1 (Tribaloy T-700) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN T-700
CN Tribaloy 700
CN Tribaloy T-700
MF C . Co . Cr . Fe . Mo . Ni . Si
CI AYS
LC STN Files: CA, CAPLUS, CIN, USPATFULL

Component	Component Percent	Component Registry Number

Ni	45	-	52	7440-02-0
Mo	31	-	33	7439-98-7
Cr	14	-	16	7440-47-3
Si	3	-	3.5	7440-21-3
Co	0	-	3	7440-48-4
Fe	0	-	3	7439-89-6
C	0	-	0.1	7440-44-0

54 REFERENCES IN FILE CA (1967 TO DATE)
54 REFERENCES IN FILE CAPLUS (1967 TO DATE)

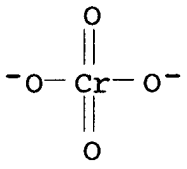
L100 ANSWER 9 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **14542-23-5** REGISTRY
CN Fluorite (CaF2) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Fluorite (8CI)
OTHER NAMES:
CN Fluorspar
CN Liparite (fluorite)
CN Liparite (fluorite)
MF Ca F2
CI MNS, COM
LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, CA, CAPLUS, CEN, CHEMLIST, CBNB, CIN, CJACS, CSCHEM, CSNB, EMBASE, IFICDB, IFIPAT, IFIUDB, MSDS-OHS, PIRA, PROMT, TOXLINE, TOXLIT, TULSA, USPATFULL, VTB
Other Sources: EINECS**, NDSL**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)



5504 REFERENCES IN FILE CA (1967 TO DATE)
2 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
5507 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 10 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **13907-45-4** REGISTRY
CN Chromate (CrO42-) (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Chromate (CrO42-) ion
CN Chromate anion (CrO42-)
CN Chromate(2-)
CN Chromate(IV) ion
CN Chromic acid (H2CrO4), ion(2-)
DR 12381-48-5, 76055-69-1
MF Cr O4
CI COM
LC STN Files: CA, CAPLUS, CHEMLIST, CJACS, DETHERM*, GMELIN*, IFICDB,

IFIPAT, IFIUDB, NISTTHERMO*, TOXLINE, TOXLIT, USPATFULL
(*File contains numerically searchable property data)
Other Sources: NDSL**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)



1619 REFERENCES IN FILE CA (1967 TO DATE)
7 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
1620 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 11 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **12759-28-3** REGISTRY
CN Nickel alloy, base, Ni,B,Cr,Si (9CI) (CA INDEX NAME)
MF B . Cr . Ni . Si
CI AYS
LC STN Files: CA, CAPLUS, TOXLIT, USPATFULL

Component	Component Registry Number
Ni	7440-02-0
B	7440-42-8
Cr	7440-47-3
Si	7440-21-3

91 REFERENCES IN FILE CA (1967 TO DATE)
91 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 12 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **12686-28-1** REGISTRY
CN Nickel alloy, base, Ni,Al,Cr (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Aluminum, chromium 20, nickel base
MF Al . Cr . Ni
CI AYS
LC STN Files: CA, CAPLUS, IFICDB, IFIPAT, IFIUDB, TOXLIT, USPATFULL

Component	Component Registry Number
Ni	7440-02-0
Al	7429-90-5
Cr	7440-47-3

122 REFERENCES IN FILE CA (1967 TO DATE)
122 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 13 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **12671-96-4** REGISTRY
CN Cobalt alloy, base, Co 47-69,Cr 27-33,W 3.0-6.0,Fe 0-3.0,Ni 0-3.0,Mn 0-2.5,Mo 0.5-2.0,Si 0-2.0,C 0.6-1.5 (UNS R30016) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 6B
CN AMS 5894
CN Haynes 6B
CN Haynes Stellite 6B
CN HS6B
CN R30016
CN S 6B
CN Stellite 6B
CN UNS R30016
DR 12743-58-7
MF C . Co . Cr . Fe . Mn . Mo . Ni . Si . W
CI AYS
LC STN Files: CA, CAPLUS, PROMT, TOXLIT, USPATFULL

Component	Component Percent			Component Registry Number
Co	47	-	69	7440-48-4
Cr	27	-	33	7440-47-3
W	3.0	-	6.0	7440-33-7
Fe	0	-	3.0	7439-89-6
Ni	0	-	3.0	7440-02-0
Mn	0	-	2.5	7439-96-5
Mo	0.5	-	2.0	7439-98-7
Si	0	-	2.0	7440-21-3
C	0.6	-	1.5	7440-44-0

102 REFERENCES IN FILE CA (1967 TO DATE)
102 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 14 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **12671-82-8** REGISTRY
CN Iron alloy, base, Fe 49-60,Ni 24.0-27.0,Cr 13.50-16.00,Ti 1.90-2.35,Mn 0-2.00,Mo 1.00-1.50,Si 0-1.00,V 0.10-0.50,Al 0-0.35,C 0-0.08,P 0-0.040,S 0-0.030,B 0.0010-0.010 (UNS S66286) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 15Cr25Ni
CN A 286
CN AISI 660
CN AISI A286
CN Altemp A286

CN AMS 5525
CN AMS 5731
CN AMS 5736
CN ASME SA453-660
CN ASME SA638-660
CN ASTM A453-660
CN ATS 28
CN DIN 1.4944
CN DIN 1.4980
CN G 68
CN GH132
CN HEV 7
CN JIS SUH 660
CN M-A286
CN Pyromet A-286
CN Pyrotool A
CN R7
CN RGT1
CN SRM 348
CN Stainless steel 2570
CN Stainless steel G 48
CN SUH 660
CN SUH 660-B
CN SY 286
CN Thermon 4980
CN Tinidur M
CN UNS K66286
CN UNS S66286
CN Uranus R7
CN X5NiCrTi26-15
CN X5NiCrTiMo26-14
CN XN 26
CN Z 6 NCTDV 25-15
CN Z5NCTD26-15
CN Z6NCT25
CN Z6NCT25.15
CN Z6NCTD 26-15 Steel
CN Z6NCTDV25
CN Z6NCTDV25-15
ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for DISPLAY
DR 12671-79-3, 12672-98-9, 12744-15-9, 174334-36-2, 55061-44-4, 55068-53-6, 61850-16-6, 71765-08-7, 71768-36-0, 86437-76-5, 39362-77-1, 52347-22-5
MF C . Al . B . Cr . Fe . Mn . Mo . Ni . P . S . Si . Ti . V
CI AYS
LC STN Files: ASMDATA*, CA, CAPLUS, IFICDB, IFIPAT, IFIUDB, TOXLIT, USPATFULL
(*File contains numerically searchable property data)

Component Component Component

	Percent			Registry Number
Fe	49	-	60	7439-89-6
Ni	24.0	-	27.0	7440-02-0
Cr	13.50	-	16.00	7440-47-3
Ti	1.90	-	2.35	7440-32-6
Mn	0	-	2.00	7439-96-5
Mo	1.00	-	1.50	7439-98-7
Si	0	-	1.00	7440-21-3
V	0.10	-	0.50	7440-62-2
Al	0	-	0.35	7429-90-5
C	0	-	0.08	7440-44-0
P	0	-	0.040	7723-14-0
S	0	-	0.030	7704-34-9
B	0.0010	-	0.010	7440-42-8

429 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
429 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 15 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **12606-09-6** REGISTRY
CN Nickel alloy, base, Ni 67-76,Cr 12.00-14.00,Al 5.5-6.5,Mo 3.8-5.2,Nb 1.8-2.8,Fe 0-2.50,Ti 0.5-1.0,Si 0-0.50,Mn 0-0.25,C 0.08-0.20,Zr 0.05-0.15,B 0.005-0.015 (UNS N07713) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 713C
CN A 567-7V
CN Alloy 713C
CN AMS 5377
CN AMS 5391
CN ATS 290
CN ATS 290G
CN DIN 2.4888
CN Haynes 713C
CN IN 713
CN IN 713C
CN Inco 713C
CN Inconel 713
CN Inconel 713C
CN NiCr13MoAl
CN Nimocast 713C
CN PM-ATS 290
CN PWA 655
CN UNS N07713
DR 12629-94-6, 12636-08-7, 12636-09-8, 12773-69-2, 12773-72-7, 54425-50-2, 67076-97-5, 37189-06-3
MF C . Al . B . Cr . Fe . Mn . Mo . Nb . Ni . Si . Ti . Zr
CI AYS
LC STN Files: CA, CAPLUS, IFICDB, IFIPAT, IFIUDB, USPATFULL

Component	Component Percent			Component Registry Number
Ni	67	-	76	7440-02-0
Cr	12.00	-	14.00	7440-47-3
Al	5.5	-	6.5	7429-90-5
Mo	3.8	-	5.2	7439-98-7
Nb	1.8	-	2.8	7440-03-1
Fe	0	-	2.50	7439-89-6
Ti	0.5	-	1.0	7440-32-6
Si	0	-	0.50	7440-21-3
Mn	0	-	0.25	7439-96-5
C	0.008	-	0.20	7440-44-0
Zr	0.05	-	0.15	7440-67-7
B	0.005	-	0.015	7440-42-8

244 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
244 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 16 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **12018-01-8** REGISTRY
CN Chromium oxide (CrO2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Chromium dioxide
CN Chromium dioxide (CrO2)
CN Chromium oxide
CN Chromium(IV) oxide
MF Cr O2
CI COM
LC STN Files: AGRICOLA, AIDSLINE, BIOBUSINESS, BIOSIS, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN, CHEMLIST, CBNB, CIN, CJACS, CSCHEM, CSNB, DETHERM*, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, JANAF*, MEDLINE, MRCK*, NISTTHERMO*, PIRA, PNI, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USPATFULL
(*File contains numerically searchable property data)
Other Sources: EINECS**, NDSL**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

O=Cr=O

1153 REFERENCES IN FILE CA (1967 TO DATE)
29 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
1153 REFERENCES IN FILE CAPLUS (1967 TO DATE)
23 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L100 ANSWER 17 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **11145-80-5** REGISTRY
CN Nickel alloy, base, Ni 70.0-77,Cr 14.0-17.0,Fe 5.0-9.0,Ti

2.25-2.75,Nb 0.70-1.20,Al 0.40-1.0,Mn 0-1.0,Cu 0-0.5,Si 0-0.50,C 0-0.08,S 0-0.01 (UNS N07750) (9CI) (CA INDEX NAME)

OTHER NAMES:
CN AISI 688
CN AMS 5542
CN AMS 5667
CN ASME SB637-N07750
CN Coreloy I
CN DIN 2.4669
CN HR 505
CN IN-X 750
CN Inconel 750
CN Inconel 750-X
CN Inconel X
CN Inconel X 750
CN L 335
CN NCF 750
CN NiCr15Fe7TiAl
CN NiCrFe X-750
CN Pyromet X-750
CN SA637-688
CN Superni 750
CN UNS N07750
CN X 750
DR 12606-13-2, 12631-33-3, 37195-24-7, 37373-64-1
MF C . Al . Cr . Cu . Fe . Mn . Nb . Ni . S . Si . Ti
CI AYS
LC STN Files: ASMDATA*, CA, CAPLUS, IFICDB, IFIPAT, IFIUDB, PROMT, TOXLIT, USPATFULL
(*File contains numerically searchable property data)

Component	Component Percent	Component Registry Number
Ni	70.0 - 77	7440-02-0
Cr	14.0 - 17.0	7440-47-3
Fe	5.0 - 9.0	7439-89-6
Ti	2.25 - 2.75	7440-32-6
Nb	0.70 - 1.20	7440-03-1
Al	0.40 - 1.0	7429-90-5
Mn	0 - 1.0	7439-96-5
Si	0 - 0.50	7440-21-3
Cu	0 - 0.5	7440-50-8
C	0 - 0.08	7440-44-0
S	0 - 0.01	7704-34-9

490 REFERENCES IN FILE CA (1967 TO DATE)
491 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 18 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **11106-97-1** REGISTRY

CN Nickel alloy, base, Ni 80,Cr 20 (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Chromium 22,nickel 78 (atomic)
DR 11146-50-2
MF Cr . Ni
CI AYS
LC STN Files: CA, CAPLUS, CHEMCATS, CHEMLIST, CSCHEM, IFICDB, IFIPAT, IFIUDB, TOXLIT, USPATFULL

Component	Component Percent	Component Registry Number
Ni	80	7440-02-0
Cr	20	7440-47-3

814 REFERENCES IN FILE CA (1967 TO DATE)
814 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 19 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **11105-45-6** REGISTRY
CN Chromium alloy, nonbase, Cr,Ni (9CI) (CA INDEX NAME)
DR 117354-17-3
MF Cr . Ni
CI AYS
LC STN Files: CA, CAPLUS, IFICDB, IFIPAT, IFIUDB, TOXLIT, USPATFULL

Component	Component Registry Number
Cr	7440-47-3
Ni	7440-02-0

1418 REFERENCES IN FILE CA (1967 TO DATE)
2 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
1421 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 20 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **7789-75-5** REGISTRY
CN Calcium fluoride (CaF2) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Calcium fluoride (8CI)
OTHER NAMES:
CN Calcium difluoride
CN Calcium difluoride (CaF2)
CN Irtran 3
DR 29070-15-3
MF Ca F2
CI COM
LC STN Files: AGRICOLA, ANABSTR, APILIT, APILIT2, APIPAT, APIPAT2, BIOBUSINESS, BIOSIS, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CBNB, CIN, CJACS, CSCHEM,

CSNB, DETHERM*, DIPPR*, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, JANAF*, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PDLCOM*, PIRA, PNI, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

F—Ca—F

14869 REFERENCES IN FILE CA (1967 TO DATE)
192 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
14884 REFERENCES IN FILE CAPLUS (1967 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L100 ANSWER 21 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **7789-24-4** REGISTRY
CN Lithium fluoride (LiF) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Lithium fluoride (7CI, 8CI)
OTHER NAMES:
CN Lithium monofluoride
CN Lithium monofluoride (LiF)
CN MTS-N
CN NTL 50
CN PTL 710
CN TLD 100
DR 12285-65-3, 64975-45-7, 40619-18-9
MF F Li
CI COM
LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CJACS, CSCHEM, CSNB, DETHERM*, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, JANAF*, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PIRA, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

F—Li

12085 REFERENCES IN FILE CA (1967 TO DATE)
127 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
12090 REFERENCES IN FILE CAPLUS (1967 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L100 ANSWER 22 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **7789-23-3** REGISTRY
CN Potassium fluoride (KF) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Potassium fluoride (8CI)
OTHER NAMES:
CN Clocat F
CN Potassium monofluoride
CN Potassium monofluoride (KF)
DR 165892-23-9, 59217-74-2
MF F K
CI COM
LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, CA, CANCERLIT, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CBNB, CIN, CJACS, CSCHEM, CSNB, DETHERM*, EMBASE, GMELIN*, IFICDB, IFIPAT, IFIUDB, JANAF*, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PDLCOM*, PIRA, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

F—K

6262 REFERENCES IN FILE CA (1967 TO DATE)
102 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
6265 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 23 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **7787-32-8** REGISTRY
CN Barium fluoride (BaF2) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Barium fluoride (6CI, 8CI)
OTHER NAMES:
CN Barium difluoride
CN Barium difluoride (BaF2)
DR 75013-56-8
MF Ba F2
CI COM
LC STN Files: ANABSTR, BIOSIS, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMLIST, CBNB, CIN, CJACS, CSCHEM, CSNB, DETHERM*, EMBASE, GMELIN*, IFICDB, IFIPAT, IFIUDB, JANAF*, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PIRA, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

F—Ba—F

6098 REFERENCES IN FILE CA (1967 TO DATE)
148 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
6102 REFERENCES IN FILE CAPLUS (1967 TO DATE)
36 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L100 ANSWER 24 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **7783-40-6** REGISTRY
CN Magnesium fluoride (MgF2) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Magnesium fluoride (8CI)
OTHER NAMES:
CN Afluon
CN Irtran 1
CN Magnesium difluoride
CN Magnesium difluoride (MgF2)
MF F2 Mg
CI COM
LC STN Files: AGRICOLA, ANABSTR, BIOSIS, CA, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMLIST, CBNB, CIN, CJACS, CSCHEM, CSNB, DETHERM*, GMELIN*, IFICDB, IFIPAT, IFIUDB, JANAF*, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PIRA, PNI, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

F—Mg—F

5423 REFERENCES IN FILE CA (1967 TO DATE)
54 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
5434 REFERENCES IN FILE CAPLUS (1967 TO DATE)
38 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L100 ANSWER 25 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **7681-49-4** REGISTRY
CN Sodium fluoride (NaF) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Sodium fluoride (8CI)
OTHER NAMES:
CN Act
CN Antibulit
CN Duraphat
CN FDA 0101
CN Floridine
CN Florocid
CN Fludent

CN Fluoraday
CN Fluorigard
CN Fluorol
CN Flura Drops
CN Flurexal
CN Flursol
CN Fungol B
CN Karidium
CN Ossin
CN Osteofluor
CN Pergantene
CN Prodent
CN Sodium monofluoride
CN Sodium monofluoride (NaF)
CN T-Fluoride
CN Thera Flur
CN Zymafluor
DR 59217-75-3, 67112-29-2, 39287-69-9
MF F Na
CI COM
LC STN Files: AGRICOLA, AIDSLINE, ANABSTR, BIOBUSINESS, BIOSIS, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CBNB, CIN, CJACS, CSCHEM, CSNB, DETHERM*, DDFU, DIPPR*, DRUGU, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, JANAF*, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PDLCOM*, PIRA, PHAR, PNI, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USAN, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

F— Na

14479 REFERENCES IN FILE CA (1967 TO DATE)
102 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
14482 REFERENCES IN FILE CAPLUS (1967 TO DATE)
4 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L100 ANSWER 26 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **7440-57-5** REGISTRY
CN Gold (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN A 4631
CN A 4953
CN AY 5022
CN Britecote
CN Burnish Gold
CN C.I. 77480
CN C.I. Pigment Metal 3

CN Colloidal gold
CN Gold 197
CN Gold black
CN Gold element
CN Gold Flake
CN Gold Leaf
CN Gold Powder
CN Shell Gold
DR 33019-35-1
MF Au
CI COM
LC STN Files: AGRICOLA, AIDSLINE, ANABSTR, APILIT, APILIT2, APIPAT, APIPAT2, BIOBUSINESS, BIOSIS, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMLIST, CBNB, CIN, CJACS, CSCHEM, CSNB, DETHERM*, DDFU, DRUGU, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PIRA, PNI, PROMT, RTECS*, TOXLINE, TOXLIT, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

Au

76699 REFERENCES IN FILE CA (1967 TO DATE)
2198 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
76791 REFERENCES IN FILE CAPLUS (1967 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L100 ANSWER 27 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **7440-50-8** REGISTRY
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN 1100T
CN 115A
CN 1721 Gold
CN 200RL
CN 22BB400
CN 3EC
CN 3EC-HTE
CN 3EC-III
CN 3EC3
CN 3L Fire
CN Allbri Natural Copper
CN Arwood copper
CN BHY 02B-T
CN BHY 13T
CN BSH
CN BSH (metal)
CN C 100

CN C 100 (metal)
CN C.I. 77400
CN C.I. Pigment Metal 2
CN CE 1100
CN CE 1110
CN CE 115
CN CE 15
CN CE 25
CN CE 7
CN CE 7 (metal)
CN CE 8A
CN CF 78
CN Copper element
CN Copper Powder
CN CS-F 150E
CN CuEP
CN CuEPP
CN CuLox 6010
CN CuLox 6030
CN DN 02
CN E 115
CN E 115 (metal)
CN FCC 115A
CN GE 1110
CN HTE
CN JTC 1OZ
CN Kafar copper
CN M 36.012
CN MA-CDS
CN MD 1
CN MD 1 (metal)
CN MF-D2
CN MF-D3
ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for DISPLAY
DR 65555-90-0, 72514-83-1
MF Cu
CI COM
LC STN Files: AGRICOLA, AIDSLINE, ANABSTR, APILIT, APILIT2, APIPAT, APIPAT2, BIOBUSINESS, BIOSIS, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CBNB, CHEMSAFE, CIN, CJACS, CSCHEM, CSNB, DETHERM*, DDFU, DRUGU, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, JANAF*, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NISTTHERMO*, PIRA, PNI, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

Cu

277554 REFERENCES IN FILE CA (1967 TO DATE)
16506 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
277760 REFERENCES IN FILE CAPLUS (1967 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L100 ANSWER 28 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **7440-22-4** REGISTRY
CN Silver (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN 1520D
CN Ag-C-GS
CN AG-CO
CN Ag-E 350
CN AgC-A
CN Algaedyn
CN Argentum
CN Astroflake 5
CN AX 10C
CN AY 6010
CN AY 6080
CN C 200
CN C 200 (metal)
CN C.I. 77820
CN Carey Lea silver
CN D 25
CN D 25 (metal)
CN Dotite XA 208
CN E 20
CN E 20 (metal)
CN FA 312
CN G 13
CN G 13 (metal)
CN HCF 38
CN KS
CN KS (metal)
CN L 3
CN L 3 (element)
CN LS 500
CN Metz 25B
CN Metz 3000-1
CN Metz 56
CN MMC-SF 25
CN MMC-SF 53
CN PS 652
CN Puff Silver X 1200
CN QS 175
CN RT 1710S

CN RT 1710S-C1
CN SD
CN SD (metal)
CN SF 135
CN Shell Silver
CN Silcoat AgC-A
CN Silcoat AgC-B
CN Silcoat AgC-GS
CN Silcoat AgC-O
CN Silflake 135
CN Silpowder 130
CN Silver atom
ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for DISPLAY
DR 87354-45-8, 87370-84-1
MF Ag
CI COM
LC STN Files: AIDSLINE, ANABSTR, APILIT, APILIT2, APIPAT, APIPAT2, BIOSIS, CA, CABA, CANCERLIT, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CBNB, CHEMSAFE, CIN, CJACS, CSCHEM, CSNB, DETHERM*, DDFU, DIPPR*, DRUGU, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PIRA, PNI, PROMT, RTECS*, TOXLINE, TOXLIT, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

Ag

87730 REFERENCES IN FILE CA (1967 TO DATE)
2848 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
87830 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L100 ANSWER 29 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **7440-16-6** REGISTRY
CN Rhodium (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Rhodium black
CN Rhodium-103
DR 24546-24-5, 100041-37-0
MF Rh
CI COM
LC STN Files: AGRICOLA, ANABSTR, APILIT, APILIT2, APIPAT, APIPAT2, BIOBUSINESS, BIOSIS, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CBNB, CIN, CJACS, CSCHEM, CSNB, DDFU, DRUGU, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PDLCOM*, PIRA, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USPATFULL, VTB
(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

Rh

21253 REFERENCES IN FILE CA (1967 TO DATE)
2278 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
21284 REFERENCES IN FILE CAPLUS (1967 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

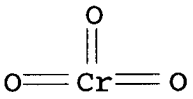
L100 ANSWER 30 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **7440-06-4** REGISTRY
CN Platinum (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN C.I. 77795
CN Liquid Bright Platinum
CN Platinum black
CN Platinum element
CN PR0
DR 21547-63-7
MF Pt
CI COM
LC STN Files: AGRICOLA, ANABSTR, APILIT, APILIT2, APIPAT, APIPAT2, BIOBUSINESS, BIOSIS, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CBNB, CHEMSAFE, CIN, CJACS, CSCHEM, CSNB, DETHERM*, DDFU, DRUGU, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PIRA, PNI, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

Pt

69789 REFERENCES IN FILE CA (1967 TO DATE)
3621 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
69874 REFERENCES IN FILE CAPLUS (1967 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L100 ANSWER 31 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **1333-82-0** REGISTRY
CN Chromium oxide (CrO3) (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Chromia (CrO3)
CN Chromic anhydride
CN Chromic trioxide
CN Chromium oxide (Cr4O12)

CN Chromium trioxide
CN Chromium(VI) oxide
CN Monochromium trioxide
DR 12324-05-9, 12324-08-2
MF Cr O3
CI COM
LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST, CBNB, CHEMSAFE, CIN, CJACS, CSCHEM, CSNB, DETHERM*, DIPPR*, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, JANAF*, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PDLCOM*, PIRA, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)



5061 REFERENCES IN FILE CA (1967 TO DATE)
99 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
5065 REFERENCES IN FILE CAPLUS (1967 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L100 ANSWER 32 OF 32 REGISTRY COPYRIGHT 1997 ACS
RN **1308-38-9** REGISTRY
CN Chromium oxide (Cr2O3) (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN 11661 Green
CN Amdry 6410
CN Amperit 704.0
CN C.I. 77288
CN C.I. Pigment Green 17
CN Casalis Green
CN Chrome green
CN Chrome Oxide Green BX
CN Chrome Oxide Green GN
CN Chrome Oxide Green GN-M
CN Chrome Oxide Green GP
CN Chromia
CN Chromic oxide
CN Chromium oxide
CN Chromium oxide (Cr8O12)
CN Chromium Oxide Green
CN Chromium Oxide Pigment
CN Chromium Oxide X1134
CN Chromium sesquioxide
CN Chromium(3+) oxide

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CN   Dichromium trioxide
CN   G 112
CN   G 112 (oxide)
CN   Green Chrome Oxide
CN   Green chromic oxide
CN   Green chromium oxide
CN   Green cinnabar
CN   Green Oxide of Chromium
CN   Levanox Green GA
CN   OKhP 1
CN   P 106F10
CN   PK 5304
CN   Pure Chromium Oxide Green 59
CN   Sicopal Green 9996
DR   165589-75-3, 12689-83-7, 164057-73-2, 144855-63-0
MF   Cr2 O3
CI   COM, MAN
LC   STN Files:   AGRICOLA, ANABSTR, APILIT, APILIT2, APIPAT, APIPAT2,
       BIOBUSINESS, BIOSIS, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT,
       CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CBNB, CIN, CJACS, CSCHEM,
       CSNB, DETHERM*, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA,
       JANAF*, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PDLCOM*, PIRA, PNI,
       PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USAN, USPATFULL, VTB
         (*File contains numerically searchable property data)
     Other Sources:   DSL**, EINECS**, TSCA**
         (**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
           18136 REFERENCES IN FILE CA (1967 TO DATE)
             294 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
           18153 REFERENCES IN FILE CAPLUS (1967 TO DATE)
               1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> file hca
FILE 'HCA' ENTERED AT 12:09:14 ON 27 MAY 1997
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FILE COVERS 1967 - 27 May 1997 (970527/ED)  VOL 126 ISS 22

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

=> d l99 1-19 ti

L99  ANSWER 1 OF 19  HCA  COPYRIGHT 1997 ACS
TI   Studies on the surface modification and measurements

L99  ANSWER 2 OF 19  HCA  COPYRIGHT 1997 ACS
TI   Heat-resisting painting of aluminum-coated steel sheets
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L99 ANSWER 3 OF 19 HCA COPYRIGHT 1997 ACS
TI Manufacture of cationically homogeneous, transparent refractory oxides of nanometer-scale particle diameters at reduced temperatures, and the refractory oxides obtained

L99 ANSWER 4 OF 19 HCA COPYRIGHT 1997 ACS
TI Electrical property improvement of dielectric coatings on aluminum

L99 ANSWER 5 OF 19 HCA COPYRIGHT 1997 ACS
TI Urea **composites** with complex curing agents and activated fillers

L99 ANSWER 6 OF 19 HCA COPYRIGHT 1997 ACS
TI **Composites** comprising inorganic fiber-reinforced ceramic, glass-ceramic, and glass matrixes, and interfaces of layered silicates, and their manufacture

L99 ANSWER 7 OF 19 HCA COPYRIGHT 1997 ACS
TI Heat-resistant **composite** ceramic articles and their manufacture

L99 ANSWER 8 OF 19 HCA COPYRIGHT 1997 ACS
TI Subatmospheric burning characteristics of AP/CTPB **composite** propellants with burning rate modifiers

L99 ANSWER 9 OF 19 HCA COPYRIGHT 1997 ACS
TI Stability of tetragonal zirconia in molten fluoride salts

L99 ANSWER 10 OF 19 HCA COPYRIGHT 1997 ACS
TI Manufacture of steel-concrete **composite** tubes prepared by centrifugal molding

L99 ANSWER 11 OF 19 HCA COPYRIGHT 1997 ACS
TI Dispersion of metal compound particles in porous materials

L99 ANSWER 12 OF 19 HCA COPYRIGHT 1997 ACS
TI Stability of tetragonal zirconia in molten fluoride salts

L99 ANSWER 13 OF 19 HCA COPYRIGHT 1997 ACS
TI Polymeric composition

L99 ANSWER 14 OF 19 HCA COPYRIGHT 1997 ACS
TI Wear-resistant parts

L99 ANSWER 15 OF 19 HCA COPYRIGHT 1997 ACS
TI Electromotive force measurements using **calcium fluoride** cell - heats of formation of calcium chromite

L99 ANSWER 16 OF 19 HCA COPYRIGHT 1997 ACS
TI Composition for dental prostheses

L99 ANSWER 17 OF 19 HCA COPYRIGHT 1997 ACS
TI **Composite** nickel-chromium coatings with increased corrosion resistance

L99 ANSWER 18 OF 19 HCA COPYRIGHT 1997 ACS
TI Electrolytic surface treatment of steel to improve its corrosion resistance and mechanical properties

L99 ANSWER 19 OF 19 HCA COPYRIGHT 1997 ACS
TI X-ray K.beta. emission spectra and energy levels of compounds of 3D-transition metals. II. Nonoxidic compounds

=> d l99 7,11,14,17 cbib abs hitind

L99 ANSWER 7 OF 19 HCA COPYRIGHT 1997 ACS
113:45204 Heat-resistant **composite** ceramic articles and their manufacture. Oki, Takeo; Fukuda, Yoichi; Hisada, Eiichi; Aoki, Tetsushi (Noritake Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 01270579 A2 891027 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 88-97295 880420.
AB The title articles consist of ceramic substrates and coatings (formed on prescribed areas of the substrates by immersion method) comprising metal carbides, borides, nitrides, and/or silicides. The substrates are immersed in a bath of molten salt to form the coatings. The molten salts are fluoride-contg. molten alkali metal and/or alk. earth metal halides.
IC ICM C04B041-87
CC 57-2 (Ceramics)
ST **composite** ceramic heat resistant; carbide coating **composite** ceramic; boride coating **composite** ceramic; nitride coating **composite** ceramic; silicide coating **composite** ceramic
IT Borides
Carbides
Nitrides
Silicides
(ceramic **composites** with coatings of, manuf. of, by immersion method)
IT Ceramic materials and wares
(**composites**, with carbide and boride and nitride and/or silicide coatings, heat-resistant, manuf. of, by immersion method)
IT Alkaline earth halides
Alkali metal halides, uses and miscellaneous
(molten, in manuf. of heat-resistant ceramic **composites** with carbide and boride and nitride and/or silicide coatings)
IT 7440-03-1, Niobium, uses and miscellaneous 7440-25-7, Tantalum, uses and miscellaneous 7440-62-2, Vanadium, uses and miscellaneous 11130-49-7, Chromium carbide 12070-12-1, Tungsten carbide 12627-57-5, Molybdenum carbide

(carbon **composites** with coatings of, manuf. of heat-resistant)
IT 12033-89-5, Silicon nitride (Si3N4), uses and miscellaneous
(ceramics, nitride coated, for heat-resistant **composites**
)
IT 409-21-2, Silicon carbide, uses and miscellaneous
(**composites**, with carbide coatings, manuf. of heat-resistant)
IT 7440-44-0P, Carbon, preparation
(**composites**, with nitride coatings, manuf. of heat-resistant)
IT 10043-11-5, Boron nitride, uses and miscellaneous
(hexagonal, **composites**, with nitride coatings, manuf. of heat-resistant)
IT **1308-38-9**, Chromia, uses and miscellaneous 1313-96-8, Niobium pentoxide 1314-35-8, Tungsten trioxide, uses and miscellaneous 1314-62-1, Vanadium pentoxide, uses and miscellaneous 7439-98-7, Molybdenum, uses and miscellaneous
(molten bath contg., in manuf. of carbon **composites** with carbide coatings)
IT 7440-67-7P, Zirconium, preparation
(molten bath contg., in manuf. of silicon carbide **composites** with carbide coatings)
IT 1304-28-5, Baria, uses and miscellaneous 1314-23-4, Zirconia, uses and miscellaneous **7681-49-4**, **Sodium fluoride**, uses and miscellaneous 10361-37-2, Barium chloride, uses and miscellaneous 11108-67-1, Ferroboron 12023-04-0 13463-67-7, Titanium oxide (TiO2), uses and miscellaneous
(molten bath contg., in manuf. of silicon carbide **composites** with carbide coatings)
IT 7447-40-7, Potassium chloride, uses and miscellaneous
(molten bath contg., in manuf. of silicon nitride **composites** with nitride coatings)
IT 12070-08-5, Titanium carbide
(silicon carbide ceramics coated with, for heat-resistant **composites**)
IT 25583-20-4, Titaniumnitride 25658-42-8, Zirconium nitride
(silicon nitride ceramics coated with, for heat-resistant **composites**)

L99 ANSWER 11 OF 19 HCA COPYRIGHT 1997 ACS
105:212952 Dispersion of metal compound particles in porous materials. Hamashima, Kaneo; Donomoto, Tadashi (Toyota Motor Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 61147825 A2 860705 Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 84-266848 841218.
AB Porous materials are impregnated with metal compd. particles to prep. preforms for infiltration with molten metal by pressure casting. The impregnation is done with a soln. contg. metal ions, and the impregnated soln. is heated for drying. Thus, a preform (apparent d. 0.16 g/cm3) of Al2O3 fibers was impregnated with Fe3+

in HCl, and then heated in air at 500.degree. to obtain an impregnated preform (0.3 g/cm3) contg. Al2O3 fibers 5 and powd. Fe2O3 (0.05 .mu. size) 2.7 vol. %.

IC ICM C22C001-10
ICA B22D019-14
CC 56-4 (Nonferrous Metals and Alloys)
Section cross-reference(s): 55, 57
ST dispersion metal compd porous material; alumina fiber preform hematite impregnation; **composite** preform metal compd impregnation
IT Carbon fibers
(**composite** preforms from, dispersion of metal compd. particles in, by wet impregnation and drying)
IT 409-21-2, uses and miscellaneous 1344-28-1, uses and miscellaneous
(**composite** preforms from fibers of, dispersion of metal compd. particles in, by wet impregnation and drying)
IT 7631-86-9P, preparation
(**composite** preforms from powd., dispersion of metal compd. particles in, by wet impregnation and drying)
IT 12597-68-1, uses and miscellaneous
(**composite** preforms from short fibers of, dispersion of metal compd. particles in, by wet impregnation and drying)
IT 7758-97-6 7773-01-5 **7789-75-5**, uses and miscellaneous 12640-79-8 13463-67-7, uses and miscellaneous 13472-45-2
(dispersion of, in **composite** preforms, by wet impregnation and drying)
IT 1303-86-2, uses and miscellaneous 1307-96-6, uses and miscellaneous **1308-38-9**, uses and miscellaneous 1313-13-9, uses and miscellaneous 1313-27-5, uses and miscellaneous 1313-96-8 1313-99-1, uses and miscellaneous 1314-62-1, uses and miscellaneous 1317-36-8, uses and miscellaneous 1317-38-0, uses and miscellaneous 1317-60-8, uses and miscellaneous
(dispersion of, in **composite** preforms, by wet impregnation and drying)

L99 ANSWER 14 OF 19 HCA COPYRIGHT 1997 ACS
105:65174 Wear-resistant parts. Usui, Masayoshi (Usui International Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 61064887 A2 860403 Showa, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 84-184309 840903.
AB Cr2O3 ceramics or **composite** ceramics of Cr2O3 with SiO2, ZrO2, Al2O3, SiC, Si3N4, **LiF**, and/or **CaF2** are filled in micro-depressions on porous Cr plating on a metal base to form a wear-resistant sliding surface consisting of hard Cr surfaces and ceramic surfaces. Thus, a channel type porous Cr plating layer having a porosity of 25-30% was formed on a cast iron (FC-35) disk. An aq. H2CrO4 soln. was prepd. from **CrO3** 100 and H2O 65 wt. parts. The disk was dipped in the H2CrO4 soln. at 0.01 mmHg, dried, and heated at 460.degree. for 30 min to form a crust of Cr2O3, then the process was repeated 4 times to fill the pores in

the Cr2O3 ceramics. The sp. wear loss was 8.2 .times. 10-10 vs. 7.7 .times. 10-9 mm3/Kg.mm for a disk with only Cr plating and having porosity 15-20%.

IC ICM C23C028-00
ICS C23C018-12

CC 57-2 (Ceramics)
Section cross-reference(s): 56

ST chromium plated wear resistant part; chromia ceramic filled porous chromium plating; silica chromia **composite** porous chromium plating; zirconia chromia **composite** porous chromium plating; alumina chromia **composite** porous chromium plating; silicon carbide chromia porous chromium plating; silicon nitride chromia porous chromium plating; **lithium fluoride** chromia porous chromium plating; **calcium fluoride** chromia porous chromium plating

IT 11097-15-7, properties
(chromium-plated, **chromium oxide** filling in microdepressions on, for wear-resistant sliding surface)

IT 409-21-2, properties 1314-23-4, properties 1344-28-1, properties 7631-86-9, properties **7789-24-4**, properties **7789-75-5**, properties 12033-89-5, properties
(filling by **chromium oxide** and, of microdepressions in chromium plating for wear-resistant sliding surfaces)

IT **1308-38-9**, uses and miscellaneous
(filling by, of microdepressions on chromium plating for wear-resistant sliding surfaces)

IT 7440-47-3, properties
(plating, on cast iron, **chromium oxide** filling in microdepressions on, for wear-resistant sliding surfaces)

L99 ANSWER 17 OF 19 HCA COPYRIGHT 1997 ACS

79:132200 **Composite** nickel-chromium coatings with increased corrosion resistance. Saifullin, R. S.; Nadeeva, F. I.; Okuntsov, N. V. (USSR). Intensifikatsiya Elektrolit. Protsessov Naneseniya Metallopokrytii, Mater. Semin., Meeting Date 1970, 38-40. Tsent. Byuro Nauch.-Tekh. Inform.: Moscow, USSR. (Russian) 1971. CODEN: 27EPAA.

AB The following steps were recommended for a 3-layer **composite** plate consisting of Ni strike, intermediate nonporous Ni and Cr. This **composite** plate was bright, had high corrosion resistance and was made by: (1) electroplating bright Ni 12 .mu. thick from either NiSO4.7H2O 300; **NaF** 5; NaCl 10; H3BO3 30; 2-6, 2-7-naphthalenedisulfonic acid 3 g/l., at pH 3.5-4.5 or from NiSO4.7H2O 300; NiCl2.6H2O 60; H3BO3 30; saccharin 1; 1,4-butanediol 0.5; K phthalimide 0.1 g/l., at pH 4.0-4.5 for a 10 .+-. 1 .mu. thick layer; (2) electroplating an intermediate 3 .mu. thick nonporous Ni plate from 1 of the above-mentioned baths contg. a suspension of corundum powder KO-7 and MP-1 of 0.5-2 .mu. size at 40.degree. and cathodic c.d. 5 A/dm2; and (3) electroplating 3 .mu.

thick Cr layer from **CrO3** 400, H2SO4 4 g/l., at 40.degree.
and c.d. 10 A/dm2 in 3 min.
CC 77-6 (Electrochemistry)

=> sel l99 7,11,14,17 hit rn
E33 THROUGH E36 ASSIGNED

=> file reg
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DICTIONARY FILE UPDATES: 26 MAY 97 HIGHEST RN 189261-10-7

TSCA INFORMATION NOW CURRENT THROUGH DECEMBER 1996

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=> s e33-e36
1 1308-38-9/BI
(1308-38-9/RN)
1 7789-75-5/BI
(7789-75-5/RN)
1 7681-49-4/BI
(7681-49-4/RN)
1 7789-24-4/BI
(7789-24-4/RN)
L101 4 (1308-38-9/BI OR 7789-75-5/BI OR 7681-49-4/BI OR 7789-24-4
/BI)

=> d l101 1-4 ide

← (compounds cited in the above abstracts of L99)

L101 ANSWER 1 OF 4 REGISTRY COPYRIGHT 1997 ACS
RN **7789-75-5** REGISTRY
CN Calcium fluoride (CaF2) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Calcium fluoride (8CI)
OTHER NAMES:
CN Calcium difluoride
CN Calcium difluoride (CaF2)
CN Irtran 3
DR 29070-15-3
MF Ca F2
CI COM
LC STN Files: AGRICOLA, ANABSTR, APILIT, APILIT2, APIPAT, APIPAT2,
BIOBUSINESS, BIOSIS, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT,
CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CBNB, CIN, CJACS, CSCHEM,
CSNB, DETHERM*, DIPPR*, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT,

IFIUDB, IPA, JANAF*, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PDLCOM*, PIRA, PNI, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

F—Ca—F

14869 REFERENCES IN FILE CA (1967 TO DATE)
192 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
14884 REFERENCES IN FILE CAPLUS (1967 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L101 ANSWER 2 OF 4 REGISTRY COPYRIGHT 1997 ACS
RN **7789-24-4** REGISTRY
CN Lithium fluoride (LiF) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Lithium fluoride (7CI, 8CI)
OTHER NAMES:
CN Lithium monofluoride
CN Lithium monofluoride (LiF)
CN MTS-N
CN NTL 50
CN PTL 710
CN TLD 100
DR 12285-65-3, 64975-45-7, 40619-18-9
MF F Li
CI COM
LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CJACS, CSCHEM, CSNB, DETHERM*, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, JANAF*, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PIRA, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

F—Li

12085 REFERENCES IN FILE CA (1967 TO DATE)
127 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
12090 REFERENCES IN FILE CAPLUS (1967 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L101 ANSWER 3 OF 4 REGISTRY COPYRIGHT 1997 ACS

RN **7681-49-4** REGISTRY
CN Sodium fluoride (NaF) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Sodium fluoride (8CI)
OTHER NAMES:
CN Act
CN Antibulit
CN Duraphat
CN FDA 0101
CN Floridine
CN Florocid
CN Fludent
CN Fluoraday
CN Fluorigard
CN Fluorol
CN Flura Drops
CN Flurexal
CN Flursol
CN Fungol B
CN Karidium
CN Ossin
CN Osteofluor
CN Pergantene
CN Prodent
CN Sodium monofluoride
CN Sodium monofluoride (NaF)
CN T-Fluoride
CN Thera Flur
CN Zymafluor
DR 59217-75-3, 67112-29-2, 39287-69-9
MF F Na
CI COM
LC STN Files: AGRICOLA, AIDSLINE, ANABSTR, BIOBUSINESS, BIOSIS, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CBNB, CIN, CJACS, CSCHEM, CSNB, DETHERM*, DDFU, DIPPR*, DRUGU, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, JANAF*, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PDLCOM*, PIRA, PHAR, PNI, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USAN, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

F—Na

14479 REFERENCES IN FILE CA (1967 TO DATE)
102 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
14482 REFERENCES IN FILE CAPLUS (1967 TO DATE)
4 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L101 ANSWER 4 OF 4 REGISTRY COPYRIGHT 1997 ACS
RN **1308-38-9** REGISTRY
CN Chromium oxide (Cr2O3) (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN 11661 Green
CN Amdry 6410
CN Amperit 704.0
CN C.I. 77288
CN C.I. Pigment Green 17
CN Casalis Green
CN Chrome green
CN Chrome Oxide Green BX
CN Chrome Oxide Green GN
CN Chrome Oxide Green GN-M
CN Chrome Oxide Green GP
CN Chromia
CN Chromic oxide
CN Chromium oxide
CN Chromium oxide (Cr8O12)
CN Chromium Oxide Green
CN Chromium Oxide Pigment
CN Chromium Oxide X1134
CN Chromium sesquioxide
CN Chromium(3+) oxide
CN Dichromium trioxide
CN G 112
CN G 112 (oxide)
CN Green Chrome Oxide
CN Green chromic oxide
CN Green chromium oxide
CN Green cinnabar
CN Green Oxide of Chromium
CN Levanox Green GA
CN OKhP 1
CN P 106F10
CN PK 5304
CN Pure Chromium Oxide Green 59
CN Sicopal Green 9996
DR 165589-75-3, 12689-83-7, 164057-73-2, 144855-63-0
MF Cr2 O3
CI COM, MAN
LC STN Files: AGRICOLA, ANABSTR, APILIT, APILIT2, APIPAT, APIPAT2, BIOBUSINESS, BIOSIS, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CBNB, CIN, CJACS, CSCHEM, CSNB, DETHERM*, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, JANAF*, MEDLINE, MRCK*, MSDS-OHS, NISTTHERMO*, PDLCOM*, PIRA, PNI, PROMT, RTECS*, TOXLINE, TOXLIT, TULSA, USAN, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
18136 REFERENCES IN FILE CA (1967 TO DATE)
294 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
18153 REFERENCES IN FILE CAPLUS (1967 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> d his l102-

(FILE 'HCA' ENTERED AT 12:14:02 ON 27 MAY 1997)
L102 23040 S CR2O3
L103 630 S L12 AND L102
L104 25 S L103 AND L15
L105 0 S L104 AND L14
L106 0 S L104 AND L44
L107 9 S L104 AND (L35 OR L36 OR L37)
L108 8 S L104 AND L22
L109 4 S L104 AND (L28 OR L29 OR L30 OR L31)
L110 1 S (L107 OR L108 OR L109) NOT L98

=> d l110 1 cbib abs hitstr hitind

L110 ANSWER 1 OF 1 HCA COPYRIGHT 1997 ACS
68:62133 Coatings from organometallic solutions. Langley, Robert C. (Engelhard Ind., Inc., Newark, N. J., USA). Plating (East Orange, N. J.), 54(12), 1347-9 (English) 1967. CODEN: PLATAT.
AB An efficient solar energy absorber which also has low emissivity is needed for certain aerospace coatings. The reflection of the exptl. film is a min. near 0.5 .mu. at which the wavelength the intensity of solar radiation is a max. At wavelengths > .apprx.1.5 .mu. the reflection of the film is essentially that of pure Au and, thus, the emissivity is essentially equal to that of Au. A good film contains: Au 89.5, Rh 0.4, Bi2O3 4.5, **Cr2O3** 0.2, SiO2 1.7, and BaO 3.7%. This **composite** film was obtained from an org. soln. contg. organometallic compds. in amts. calcd. to give the correct proportions after firing. Another type of coating having aerospace and terrestrial applications is a diffusion barrier. When a metallic substrate is coated with a metal, the operating life is short because of interdiffusion. Coating the substrate with a refractory oxide or frit before surface coating is a soln. to this problem. Thin films of CeO2 and Al2O3 were applied by thermal decompn. of organometallic compds., to prevent diffusion between Au and Inconel. Films of these oxides only 1000 A. thick were effective in preventing diffusion at 700.degree. for 50-100 hrs. The thin diffusion barrier materials were applied to polished Inconel, and the **composite** Au film was applied over the diffusion barriers. **MgF2** films were made by dissolving the **MgF2** through refluxing in dimethylformamide and dilg. the soln. with a mixt. of essential oils so that it would wet glass well. When fired on glass at 500.degree. in air, this gave a transparent film .apprx.500-A. thick, noncryst. in gross appearance.

Anal. by electron diffraction revealed the coating to be pure **MgF2**. A Ni resinate soln. applied on quartz and fired gradually to 600.degree. in H gave Ni films that were elec. conductive and magnetic. Efforts were also made to obtain Cr films, but carbonaceous residues formed.

IT **7783-40-6**
(coatings of, on glass)
RN 7783-40-6 HCA
CN Magnesium fluoride (MgF2) (9CI) (CA INDEX NAME)

F— Mg— F

IT **7440-57-5**, uses and miscellaneous
(diffusion between Inconel and, aluminum oxide (Al2O3) and cerium oxide (CeO2) coatings in prevention of)
RN 7440-57-5 HCA
CN Gold (8CI, 9CI) (CA INDEX NAME)

Au

CC 56 (Nonferrous Metals and Alloys)
IT Glass
(coating of, with **magnesium fluoride** (**MgF2**))
IT **7783-40-6**
(coatings of, on glass)
IT **7440-57-5**, uses and miscellaneous
(diffusion between Inconel and, aluminum oxide (Al2O3) and cerium oxide (CeO2) coatings in prevention of)